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Railway Age

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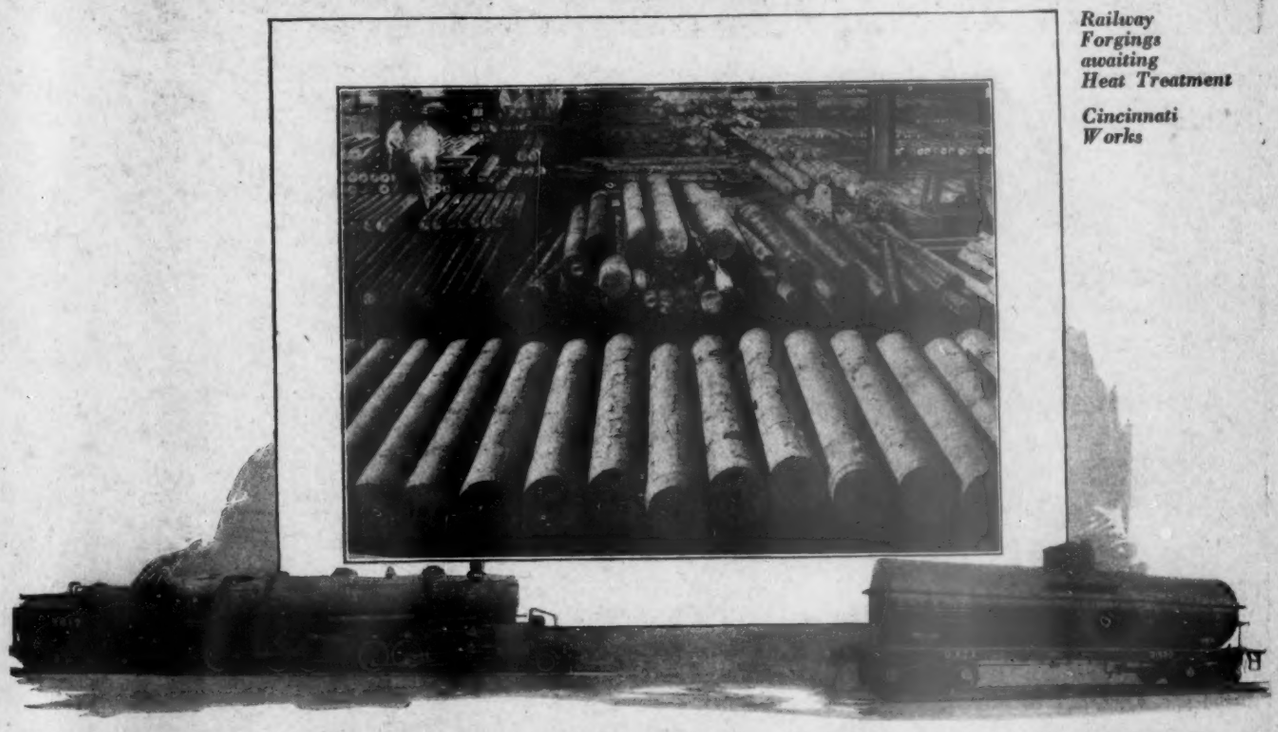

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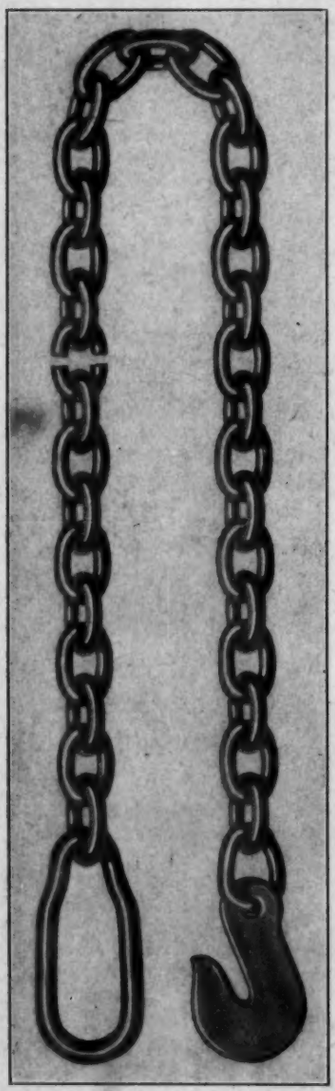

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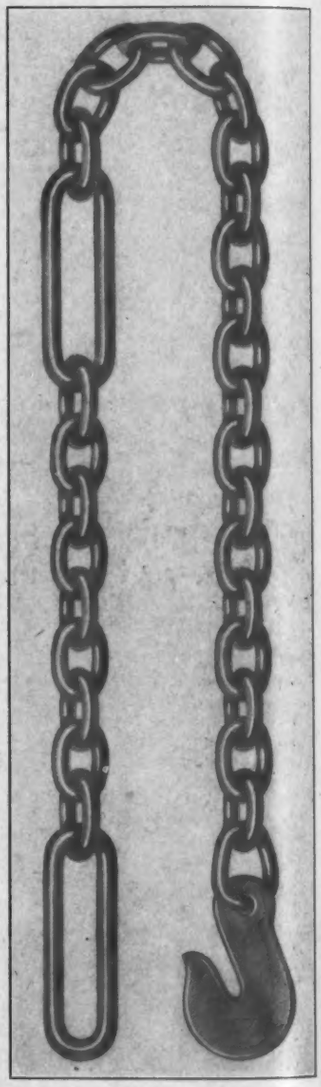

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EDITORIAL

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The RAILWAY AGE *announces the removal of its New York office from the Woolworth Building to Room* 901 *30 Church Street.*

On April 23, the Delaware & Hudson will celebrate its hundredth anniversary. During the first few years of its existence the company had no railway facilities, but was engaged in the mining of anthracite coal which it transported by canal. Nevertheless it has been a transportation company from the very beginning and is entitled to credit as the oldest transportation company in the country. A fitting celebration has been planned by the officers and directors to commemorate the occasion and elaborate historical data, written and pictorial, have been assembled for publication. Other railway companies will reach the century mark in a few years and the example of the Delaware & Hudson in arranging for a suitable celebration is worthy of emulation. An honorable career of a century in the public service should give a company a high standing in the public esteem. Through all the changes of political and industrial conditions of a century a railway company does more than increase its facilities and service; it also builds up a record which makes it comparable in many respects with institutions of proved efficacy and worth such as some of our venerable educational and religious institutions and even the government itself. The century-old railway, like them, by long years of successful functioning has proved its present value to the community. Venerability is a great aid to present efficiency in establishing before the public the worth of an institution. Railroads which can lay claim to it can well afford to do so. It will be gratifying if the other roads will see fit to follow the lead of the Delaware & Hudson and likewise celebrate their centennials when they come.

A Century of Transportation

Among the factors that require the closest attention in the present period of heavy traffic is the situation in the freight yards at division points. Lines of freight trains held up outside yards are becoming familiar sights, indicating that the capacity of the lines is limited by the number of trains that can be classified and dispatched. It goes without saying that a delay that holds up a through track in addition to locomotives and cars when they are needed for continuous service is expensive. Well-designed yards with adequate receiving and departure tracks would pay big returns under present conditions, but what the roads need most is something that will help move the business right now. In many places where the terminal situation is acute, it can be improved by minor additions to the facilities and carefully controlled operation. For example, by installing compressed air piping for testing brakes on outbound tracks, trains can often be moved out more promptly thus releasing valuable yard space. Spacing trains, both in and out at fairly regular intervals throughout the day to avoid clogging the yard assists in the rapid reclassification and dispatching of trains. When an inadequate yard is located between well-equipped terminals, trains should be made up so that they will require little or no switching at the congested point, or, if possible, they should be run through without going into the yard. "The more haste the less speed" is a proverb that certainly holds good when traffic is heavy. If trains are rushed into a terminal so fast that it becomes congested, it is likely to result in slowing up the movement over several divisions. To increase the daily mileage of freight cars, the railroads should operate trains so that yards can be kept free and enlarge or improve inadequate facilities as soon as possible.

Reducing Yard Delays

The American Railway Association in outlining a program calling for a reduction by October 1, 1923, in the number of locomotives held for heavy repairs to a basis of 15 per cent and of the number of freight cars awaiting repairs to 5 per cent has placed a heavy responsibility upon the mechanical departments and to carry it out will require the operation of locomotive and car shops to full capacity, provided the anticipated increase in traffic is realized. At the present time the number of locomotives awaiting general repairs is about 21 per cent and the number of freight cars in bad-order condition is a little over 9 per cent. A fulfillment of the program outlined would add 4,250 to the number of serviceable locomotives and nearly 100,000 to the number of available freight cars, thus aiding materially in reducing a shortage of equipment and permitting a large increase in the volume of traffic that can be moved. The percentages aimed at are considerably lower than have prevailed for years, and before they are reached, not only will it be necessary for the shops to turn out an increasing output, but the time allowed for the repairs of a locomotive or a car must be reduced. Plans for betterments in shops and terminals, either in layout or in equipment, should be vigorously pushed to a conclusion. As there is no prospect that available skilled labor will be in too great abundance, labor-saving devices should be installed wherever practical and men should be trained as rapidly as possible to perform special jobs, instead of waiting to secure men of greater skill. The first of October is but little more than five months away and there is no time to lose if equipment is to be placed in proper condition within that time.

Big Program for Equipment Maintenance

That the ability of the railroads to handle a large volume of traffic depends in a considerable measure upon the available number of serviceable locomotives was apparently clearly realized by the American Railway Association when it undertook to bring down the number of locomotives being held for heavy repairs to 15 per cent by October 1, 1923. The carrying out of this program will throw a heavy burden upon the locomotive shops during the next few months, a load which many of them are unfortunately none too well equipped to handle. The campaign has been started none too soon. Every railroad man can recall instances where locomotive work was allowed to drag during the summer months when traffic was light and then after a flood of traffic came on the shops were worked overtime to supply locomotives fast enough to meet the demand. Working short hours and then overtime is de-

Importance of the Locomotive Terminal

moralizing to a force of men and should be resorted to as little as possible. Attempting to handle a rush of traffic when the weather becomes severe is difficult at the best and the situation is rendered far worse if locomotives are in a poor condition and engine failures tie up the movement of trains. Nothing will be accomplished and much will be lost by any lowering of the standards in locomotive maintenance. It will not do to transfer a large portion of the responsibility from the back shop to the enginehouse. If traffic is waiting to be moved, it is just as important that the percentage of locomotives held for less than 24 hours be kept down to a minimum as that the percentage of those held for over 24 hours be reduced. The ability to meet a difficult traffic situation may depend fully as much, if not more, upon the efficiency of the locomotive terminals as upon the efficiency of the locomotive shops. Running repairs must be made promptly and the ability to do this depends on the men and upon the capacity of the terminal shops. Conditions at these points must be studied and steps should immediately be taken to add needed shop equipment and to make every possible improvement which will add to capacity or efficiency. While physical facilities are essential, the importance of a better relationship between management and men, from which a spirit of greater loyalty, interest and efficiency will result, is of at least as great importance. Here is a task for the foreman, but how much they will be able to accomplish will depend in a large measure upon the extent to which they are encouraged and supported by their superior officers.

Co-operating with Service Representatives

Anyone who is not familiar with the development of the numerous appliances used on the railroads can scarcely realize the vast amount of detailed information that has been accumulated regarding their operation and maintenance. The books that have been written on the air brake would make a fair sized library, and the literature on the superheater, feedwater heater and stoker is also extensive. The experience with some of the newer devices has never been put in written form, and the best source of information regarding them is the men who have been closely in touch with their development. Railroads cannot get the full benefit from modern equipment, and especially from locomotives, unless each essential part and appliance is performing its function properly. It is manifestly impossible for untrained men to get the best results from a complicated mechanism, and supervision is essential. Railroad officers have so many duties that they cannot become experts in every branch of their work, and for that reason specialists are needed to look after various appliances. Sometimes the roads find it advisable to appoint an officer whose sole duty is to supervise the operation and maintenance of appliances, as the case of the air brake. More frequently this expenditure is not considered justified and, under such circumstances it is natural to depend on the manufacturers more or less to instruct railroad employees in the use and care of their own devices. To meet such conditions, many companies now maintain special service departments. Such organizations are useful to the railroads because they enable the roads to get expert advice whenever needed. They also help manufacturers by insuring that their products will be properly used. The attitude of railroad companies towards service representatives varies widely. Some roads use these men as they should, to assist the railroad forces to get the best possible results; others merely tolerate the service men, allowing them to inspect the equipment, but ignoring their recommendations, and a few roads prohibit visits from service men. It is difficult to see why any road should fail to make use of service organizations. The interests of the manufacturer and the railroad are one in justifying the purchase of equipment by getting the maximum benefit from it. With this end in view, the railroads will almost invariably find it to their interest to co-operate with manufacturers' service departments.

A Study to Meet the Demand for Track Capacity

As signaling makes possible the more intensive use of existing tracks, an automatic block signal installation must be engineered by one acquainted with the traffic conditions of the divisions under consideration. On a certain road which has an annual appropriation for automatic block signals, the signal engineer, with his intimate knowledge of existing conditions, prepares estimates for the installation of signals between certain points each year. A division superintendent may also request the signal engineer to furnish estimates for signaling which he feels is needed at other points. These requests for authority for expenditures are considered by the general manager, the division operating officers, the signal engineer and others in conference. This particular road is especially interested in the signaling of single track lines as a means of increasing the track capacity. As a result of the studies and conferences, signals have been and are being installed where the greatest benefit will be derived, i.e., near terminals, on grades, or on short pieces of single track where trains tend to congest and at places where delays would occur if longer blocks were used. The extent to which this road is adopting signaling is shown by the fact that over 500 miles of single track signaling is in service and there are eight stretches of signals totaling 134 miles under construction at present on single track. Although this mileage is not exceptional, the study made to determine the sections to be signaled is of interest. In view of the fact that under many circumstances signaling is the most economical method of increasing track capacity, it would appear advisable for other roads to encourage their signal officers to study local operating conditions on sections of greatest congestion.

System Earnings Statements

Largely as a result of the amount of space which it has devoted to the subject in its columns, it is with considerable interest that the *Railway Age* notices the gradually increasing number of road which have recently come to the point of showing in their annual reports or in their monthly earnings statements given to the press, their figure of net railway operating income. We notice, in particular, that the Pittsburgh & West Virginia, the Maine Central and the Louisville & Nashville have shown the figure for the first time in their recently issued 1922 annual reports and that the Rock Island shows it for the first time in its February monthly system earnings statement. With the addition of these roads to the list of roads which have previously adopted the idea of showing the net operating income figure in their annual reports or monthly statements, the list is now fairly complete. There still happen, however, to be some exceptions, including a number of fair importance. Reference is made, in particular, to certain of the carriers which issue monthly earnings statements of system operations and concerning the operations of which systems complete details cannot be readily secured from the monthly reports filed with the Interstate Commerce Commission for their individual constituent Class I carriers The Union Pacific, Southern Pacific, Pennsylvania or Illinois Central system reports may be taken as examples of what is desirable. The Union Pacific, for instance, is made up of five Class I carriers, namely the parent Union Pacific, the Oregon Short Line, the Oregon Washington Railroad & Navigation Company, the St. Joseph & Grand Island and the Los Angeles & Salt Lake. For each of these there is filed with the I. C. C. a monthly earnings report. The annual re-

port of the company, however, is a statement of the earnings of the system as a whole and it is natural that anyone using the monthly earnings figures should desire a system statement as well. It would not be impossible, of course, to compile the monthly totals for the system from the individual reports of the five constituent carriers contained therein, but it would be inconvenient. To get around this, the Union Pacific issues to the press each month a system statement complete to net operating income and all, which statement is of leading value as a timely index of the Union Pacific operating results. Now, as it happens, there are various other systems — among them notably the Kansas City Southern or the Katy — which also issue to the press monthly statements of system earnings. Unfortunately, they are carried down only to net after taxes. The result is that the statements lose a large share of the value which they otherwise might have because of the fact that the figure of net after taxes tells only one-half the story that the monthly revenue and expenses statement should contain.

Senator Couzens' Charges of Incompetency

SENATOR COUZENS of Michigan has recently issued a number of statements concerning the efficiency of railway operation, the apparent purpose of which is to show how rates may be decreased by the simple expedient of operating the railways "efficiently." In a reply appearing in full in the present issue of the *Railway Age* to a statement by Julius Kruttschnitt, which appeared in the March 31 issue of the *Railway Age,* the senator has quoted from an article published in this paper on February 11, 1921, page 359, to support what, in a similar statement issued to the press early in the week, he terms "one particular charge of incompetency."

The article to which Senator Couzens refers presented a comparison of operating statistics for the railroads of the United States for the years of peak traffic from 1903 to 1913, inclusive, which showed that although there was a marked improvement during that period in the extent to which the potential hauling capacity of freight locomotives was utilized, there was actually a decline in the total yearly traffic movement obtained from each unit of hauling capacity. In other words, while the average train load increased more than the increase in the tractive effort of the average freight locomotive, the average number of ton-miles produced by each locomotive per year showed a marked decline. Continuing the comparison, the tremendous increase in traffic which reached its maximum in 1918, led to a large increase in the actual volume of traffic moved by each unit of tractive effort, so that for 1918, and again for 1920, the actual volume of traffic moved for each tractive effort unit was equal to, if it did not exceed, that obtained at the beginning of the period under comparison. It is evident, then, that during and following the war, the railroads effected a tremendous increase in the utilization of their motive power which completely overcame the steady decline from 1903 to 1913. But an analysis of the means by which this increase of efficiency had been obtained indicates that it was entirely the result of increasing the train load so that the motive power was working much nearer to capacity when actually moving, than ever before, while the mileage performance had remained practically at the 1913 level. This obviously suggests an opportunity for further improvement by obtaining a more intensive locomotive mileage performance. Senator Couzens is no more justified in citing this possibility for the railroads to still further increase the efficiency with which their motive power is utilized as an evidence of incompetency on the part of railway managements than he would be to accuse Henry Ford, for whose judgment and ability he apparently has great respect, of incompetency 10 or 12 years ago because his production costs of that day were excessive, judged by the standard he has since attained.

Senator Couzens rightly concludes that railroad facilities are "entirely inadequate not only to meet the business needs of the country and, consequently, are a hindrance to the proper commercial and industrial expansion, but also are so inadequate that they cannot handle economically and efficiently the business which is actually offered to the railroads." He also attributes the decline in locomotive mileage performance to the fact that "repair facilities have been permitted to decline relative to the weight and tonnage of locomotives." The Senator shows a commendable disposition to get at the facts as to the present railroad situation and he has done so with a degree of accuracy far above that displayed by those of his associates now most frequently discussing railroad matters in public. But, apparently he is satisfied to stop with a knowledge of the physical facts. He does not display any marked interest in why these conditions exist.

In testifying before the Senate Interstate Commerce Committee in May, 1921, Daniel Willard clearly stated one reason why the railroads continue to buy cars and locomotives and why they continue to get along as best they can with obsolete and inadequate shop facilities.

"Is it desirable," said Mr. Willard, speaking of the Baltimore & Ohio "to spend at this time for new shops $2,000,000, which sum is available, and which sum would enable it to repair its locomotives at a lower cost, or should the money be used for the purchase of new steel coaches which will mean no economy in operation but on the contrary mean an increased cost of transportation because of the greater weight of the steel equipment?

"It was decided," he continued, "that the public in this instance would be better served by spending the money available for steel coaches rather than for new shops, inasmuch as it was possible to maintain the motive power in the existing shops."

To meet the demand of the public for increased service the railroads must constantly expand such facilities as cars, locomotives and industrial tracks. With the railroads earning a net return on the capital invested of 3.28 per cent in 1921 and 4.14 per cent in 1922, while Senator Couzens and others are demanding for the public a reduction in transportation charges it would be interesting to learn the source from which the senator thinks that the railroads will find the capital they need to provide more than the barest immediate necessities. Unless funds are still available after these necessities have been provided, how can the managements make the much needed and expensive investments in these secondary facilities such as new shops, engine houses, coaling stations, etc., which offer opportunities for large economies in operating costs but which will not take the place of cars and locomotives in actually moving traffic?

It should also be pointed out that equipment trust certificates provide a relatively easy form of credit for the purchase of equipment irrespective of the financial condition of the properties as a whole. Capital for the improvement of other facilities, in many cases much more needed than cars or locomotives, must be secured by a mortgage on the property as a whole. With credit generally inadequate then, the railroads find it comparatively easy to buy cars and locomotives, which they must continue to do, to offset in a measure their inability to provide for greater efficiency of utilization.

Senator Couzens says: "The financial managements of the railroads have practically said since 1920, that pending the development of greater net income they would not underwrite new outlays of much needed capital for a run-down transportation system. Instead of a far-sighted policy,

a narrow and misguided program of maintaining high freight rates and thus requiring the public to pay for the physical rehabilitation of the railways has been adopted." The senator's charges of narrowness with respect to the financial policy of the railroads, on the basis on which he states it, does little honor to his ability either as a business man or a statesman. It is evident that without adequate net returns which the railroads have not had for years, the "far-sighted" policy which the senator would like to see is an impossibility. The net return for 1922, shows some improvement over that for 1921, and still further improvement may be expected if present conditions as to rates obtain during the remainder of the present year. But this condition will not obtain if Senator Couzens and some of his associates have their way. What incentive is there then, for any investor to place his capital in railway improvements? Indeed a far-sighted policy suggests a distrust of any investment with respect to which the first sign of prosperity is the signal for further raids by the would-be friends of the people.

Senator Couzens' letter to Mr. Kruttschnitt is, however, in our opinion, a hopeful sign, rather than the opposite. His reasoning will in some respects seem defective to railway officers. His whole discussion of the question of railway efficiency presents, however, the most striking contrast to discussions of railway matters which emanate from such western radicals as Senators Brookhart and LaFollette. They hardly ever make any statement about railway matters which is actually based on facts. On the other hand, Senator Couzens' letter shows clearly that it was prepared by a man of real ability who desires to be fair, who has given careful study to data bearing upon the points discussed by him and who tries conscientiously to draw sound conclusions from them and to use his data and conclusions in a way that will actually promote the solution of the railroad problem instead of interfering with its solution.

In our opinion Senator Couzens has placed too much emphasis upon evidences of inefficiency in certain branches of railway operation and has not given enough consideration to the facts showing that on a whole there has been a steady and real increase in the operating efficiency of most roads. The plain fact is, however, that as pointed out in the article in the *Railway Age* from which he quotes, in certain respects there has been a decline or at least not a normal increase in railway efficiency. Dealing with the railways as a single system, we believe it is demonstrable beyond question that they have not secured the increases in ton-miles of freight service per 1,000 lb. of tractive power locomotive that should have been and can be obtained. We believe the reason for this has been that they have increased the size and tractive power of locomotives much faster in proportion than they have enlarged and improved the terminal facilities for turning, repairing and keeping the larger power in actual revenue earning service. This does not justify an attack upon the entire operating efficiency of the railroads, but it does suggest a means by which operating efficiency can be substantially increased. Senator Couzens' letter shows not only that he is a man of intelligence and ability, but also as we believe that he is a reasonable man who, unlike the western radicals, really has, as he says, an open mind regarding railroad matters.

The *Railway Age* fears men in public life such as LaFollette and Brookhart because they always express and vote their prejudices. On the other hand, we have no fear at all of a public man such as Senator Couzens because we believe the railways have a good case on the whole and when a man such as he studies it thoroughly and from every angle, his reason will force him to become a supporter and defender of private management in spite of its faults, rather than an advocate of extreme regulation or government ownership whose results he will be bound to conclude would be much worse.

The "Unearned Increment" in Railway Land

ONE OF THE MOST POPULAR diversions of anti-railway propagandists and demagogues for years has been that of denouncing railways for charging rates high enough to yield a return upon the "unearned increment" in their land. It has been pointed out by persons of this kind that in the days of extensive railway construction, the railway companies were given land grants amounting to many hundreds of thousands of acres. It has been said that the increase in the value of this land and of land bought by them has been enormous. It has been contended that valuations and rates made to enable the railways to earn a return upon this unearned increment impose a heavy and unjust burden upon the public. Since the Interstate Commerce Commission announced its tentative valuation of all the railways in 1920, this valuation has been repeatedly and savagely criticised because of the vast amount of "unearned increment" assumed to be included in it.

The only things about the railroad business that are stranger than the fictions spread abroad about it are the facts about it. The data that the Interstate Commerce Commission has made public regarding the valuations it has placed upon numerous individual railways include figures showing the amounts included in the valuations for lands actually owned and used by these railways for transportation purposes. These appraisals of the land of the railways are based upon the estimated value of lands used for other purposes which are adjacent to railway lands. They do not show how much allowance is made for "unearned increment," but they do disclose that the valuations placed upon railway lands are such a small part of the total valuations as to make clear that most of the talk about the "unearned increment" in railway values is buncombe. We have repeatedly heard and read statement to the effect that the annual increase in the value of railway land amounts to from a quarter of a billion to a billion dollars. Let us now look at the facts.

The Interstate Commerce Commission has now announced final valuations for forty-eight Class I railways. The appraisals of the land of these various railways amount to from 1.3 per cent to 26.2 per cent of their total valuations. As would naturally be expected, land is a relatively large factor in the valuations of railways in the densely populated and highly developed parts of the country and a very small factor in the thinly populated and relatively undeveloped sections. The value of its land constitutes 26 per cent of the valuation of the Delaware & Hudson, 21 per cent of that of the New York, New Haven & Hartford, 14 per cent of that of the Rock Island, 9 per cent of that of the St. Louis-Southwestern, only 4 per cent of that of the Great Northern and only 1.3 per cent of that of the Nevada Northern.

The combined valuation placed upon all these forty-eight Class I railways is $2,232,928,000. The valuation placed on lands owned and used by them is $247,000,000, or 11.0 per cent of their total valuation. The total tentative valuation placed by the commission upon the railways of the United States is now about $19,400,000,000. There is no reason to believe that when the valuations of all the individual railways are completed the aggregate allowance made for land will be found to be relatively any larger than the allowance made for the land of the individual railways whose final valuations have been announced. If this should be the case, the total valuation placed by the Interstate Commerce Commission upon the land of all the railways will be about $2,100,000,000. In other words, this will be approximately the appraisal placed by the commission upon all the land which the railways have acquired and the entire increase in its value which has occurred in about 100 years. If the

reader will contrast these figures with the estimates of demagogues to the effect that the increment in the value of railway land is from a quarter of a billion to a billion dollars annually, he will be able to form a very rational idea of how much reliance may be placed upon statements made by such men. The commission holds the railways are entitled to earn 5¾ per cent upon their valuation. To pay this percentage of return upon the entire part of the valuation due to land, "unearned increment" and all, would take 2 per cent of the present earnings. Therefore, if no allowance whatever were made for the value of railway land it might make a difference in rates of 2 per cent.

The people who really have benefited enormously by increases in the value of land are the farmers. The statistics of the census show that between 1900 and 1910 the value of farms and farm property in this country increased from twenty billion to forty billion dollars and between 1910 and 1920, from forty billion to seventy-seven billion. In the twenty years between 1900 and 1920, according to these statistics, the increase in the value of farms and farm property was 285 per cent, or fifty-seven billion dollars. Most of this increase in the value of farms and farm property was "unearned increment," and it never could have occurred without the expansion of the railroads which took place during those years. It is one of the curiosities of a curious age that the public men who clamor the most loudly about the "unearned increment" of the railways should purport to speak for that class of our people whose wealth has been increased the most by "unearned increment" made possible by the service rendered by the railroads.

The Mistakes of a Senator

Senator Arthur Capper of Kansas has recently made public a statement which shows in a striking manner the way in which anti-railroad propaganda originates. He said the following regarding the application of the provisions of the Transportation Act that require any railway which, in any year, earns more than 6 per cent upon its valuation, to pay one-half of the "excess" earnings over to the government:

"Not a dollar of these excess earnings above the 6 per cent fair-return standard has been paid over to the Government, although this law expressly provides that half of the excess above 6 per cent must be paid into the United States Treasury for the *benefit of the weaker roads*. . . . The commission itself makes known that 40 railroads have reported earnings in excess of the 6 per cent fair-return standard, and intimates when the actual valuation of all the roads is arrived at, the number may be larger. The commission also admits that not one of the roads has paid any of this surplus to the government as required *to equalize the returns of the poorer roads.*

"This is a confession, that the people living in the great productive regions of the United States are being heavily overcharged for transportation and that all the important agricultural, prosperity-making area of this country has been placed under the blight of excessive and, in many cases, prohibitive freight rates. These regions are compelled to pay this excessive toll to their *overpaid, highly prosperous* railway systems, in order that the *much less important*, poorly conducted, or inefficiently managed roads may be sustained in their inefficiency; although this provision of the law is *openly violated and nothing can be done or is done about it.*"

We call the readers' attention especially to those parts of the statements quoted which we have printed in italics. The facts regarding the matters to which Senator Capper referred are as follows:

1. The Transportation Act does not provide that one-half the surplus earnings of railways earning over 6 per cent must be paid into the United States Treasury "for the benefit of the weaker roads." What it says is that this money "shall be used by the commission in furtherance of the public interest in railway transportation, either by making loans to carriers to meet expenditures for capital account or to refund maturing securities originally issued for capital account, or by purchasing transportation equipment and facilities and leasing the same to carriers." There is nothing in this about the money being used "for the benefit of the weaker roads."

2. As Senator Capper's own statement shows, he had, at the time he wrote, a copy of the report made by the Interstate Commerce Commission on December 29, 1922, regarding this matter of "excess earnings." And what did this report of the commission say? It said, "All Class I carriers have made reports to us as to their earnings in excess of 6 per cent." That is, every one of these carriers had reported whether, in the opinion of its management, it had or had not made any excess earnings. The commission added, "We are not at this time in position to report the value of the railway property of all carriers for which information is desired. . . . We have made tentative valuations of the property of various carriers under Section 19-A of the act. Such valuations, however, date back from four to eight years and *have not as yet been brought up to the periods affected by the statute*. . . . We now have men in the field and in the Washington office engaged in bringing up to date the valuations of some 40 carriers *whose returns indicate that their earnings may be subject* to the recapture provisions of Section 15-A. Due to lack of sufficient appropriations in the present fiscal year, this work is limited to the class of carriers named. . . . The provisions of the law bearing upon the enforcement of Section 15-A and the orders of the commission thereunder have been carefully studied by our legal advisers with a view to the institution of proper legal proceedings against delinquent carriers."

In other words, Senator Capper says the commission has "made known" that 40 railroads have reported earnings in excess of the 6 per cent standard return, but what the commission said is that the returns (for 1921) of some 40 carriers "indicate that their earnings may be subject to the recapture provisions." Senator Capper says, "The commission also admits that not one of the roads has paid any of this surplus to the government." What the commission actually said is, that it is "not at this time in position to report the value of the railway property of all carriers for which information is desired," because it has not completed the valuations of the individual roads upon which computations must be based to determine whether they have or have not made excess earnings. Senator Capper says, "This provision of the law is openly violated and nothing can be done or is done about it." The commission in the very report to which he referred said that the provisions of the law and the orders of the commission thereunder "have been carefully studied" by its legal advisers "with a view to the institution of proper legal proceedings against delinquent carriers," and two federal courts already have rendered decisions upholding the very provision of the law which Senator Capper says is openly disregarded and violated.

3. The most remarkable of Senator Capper's statements perhaps, is the one to the effect that the fact that some 40 railways are believed to have made excess earnings "is a confession that the people living in the great productive regions of the United States . . . are compelled to pay this excessive toll to their overpaid, highly prosperous railway systems, in order that the much less important, poorly conducted, or inefficiently managed roads may be sustained in their inefficiency." The direct implication of these statements is, that the railways which have reported excess earnings or which the commission believes to have made such earnings, are large and important systems. What are the facts? Fourteen of these railways are Class I roads. Their

total mileage is 9,980 miles, or less than 5 per cent of the total mileage of the Class I railways. The valuations placed upon them by the commission, or claimed by their managements, aggregate 534 million dollars. This is less than 3 per cent of the total tentative valuation placed by the commission upon all Class I railways. The other 26 railways reported to have had excess earnings have a total of 599 miles of line. The aggregate valuation claimed by the owners of all of them is $25,533,000. In other words, the total mileage of the 40 roads whose earnings the commission said indicated they had excess earnings, is 4.2 per cent of the total mileage of the country, and the aggregate valuation claimed by themselves or placed upon them by the commission is 3.4 per cent of the total tentative valuation placed by the commission upon all the railways of the country.

Senator Capper's mind works in a marvelous way its wonders to perform when he can deduce from the fact that 4 per cent of the mileage of the country is suspected of having earned over 6 per cent "a confession" that the great production regions of the country are being ruined by excessive freight rates. If he had said the commission's report indicated that almost 96 per cent of the mileage of the country earned less than 6 per cent, he would have stated just as correctly what the report did indicate, but it would have been difficult to base on this a plausible argument for reductions of rates.

The Locomotive and Water Treatment

WITH A TRANSPORTATION shortage continuously since September 1, with the immediate shortage exceeding all previous records for the same reason, and with car loadings on the increase since February 8, it is evident that operating and mechanical officers particularly have a man-sized job ahead of them with which to wrestle. With scarcely a breathing spell since their last encounter with unusually severe conditions they are now entering upon what is bound to be a long and strenuous season, replete with difficulties and involving objectives deserving of their best thought and effort.

To reflect upon this is to see the importance for these officers to acquire a proper viewpoint regarding the many subjects bearing upon their work which have occupied their attention. The reason is plain. There is no question but that with the approach of the period mentioned, the officers upon whom the brunt of the transportation burden will fall will find it necessary, in order to get the best results, to select between the things which must receive immediate attention and those which might distract it.

Water treatment is a subject which has enjoyed a prominent place for months in railway discussions. The interest manifested in it is not alone among the officers charged with the work of water treating. There has been decided activity in establishing water treating facilities, as is evidenced by the unusually large number of plants that have been installed or provided for since the first of the year. On the whole, the effectiveness of water treatment seems fairly well established, but its development is bound to be restricted and its usefulness to the railroads limited in the absence of a proper viewpoint concerning it.

Recent statements have been made by railway officers and students which, when coupled together, are illuminating in determining what should be the viewpoint at this time with regard to water treatment. First, there is the recent statement of M. J. Gormley, chairman of the Car Service division of the American Railway Association, to the effect that the greatest possibilities in meeting the transportation problem in the future lie not so much in the acquisition of additional cars, as in the direction of improvements that will enable the railroads to handle more efficiently the cars they have. Carrying the analytical process one step further, President Bernet of the New York, Chicago & St. Louis, said in substance during a recent address before the Central Railway Club that in meeting the transportation needs, too much importance cannot be attached to the question of keeping locomotives up to date and in the best possible state of repair. Finally, by way of turning the spotlight on the locomotive, in turn, there is the expression of L. G. Coleman, assistant general manager of the Boston & Maine, made recently in an address before the New England Railway Club, to the effect that the inherent weakness of the locomotive and the limiting factor of long engine divisions is the locomotive boiler.

In the light of these statements, the subject of water treatment assumes a place of importance. Designed and adapted to removing objectionable matter from poor water supplies, water treatment ministers directly to the weakness of the locomotive boiler. By improving the boiler, obviously it correspondingly enlarges the possibilities in the locomotive and having done this, it has its substantial and ultimate effects in contributing to the moving traffic with greater dispatch, reliability and economy.

When preparing to enter upon the approaching period of enlarged traffic demands, therefore, it is well for the mechanical officers, especially, to cultivate and maintain an interest in water treatment or at least not to discriminate against this subject when making the necessary selection between those subjects that require present attention and those which may better be left for a more convenient season. Considering the process in the light of an operating agency rather than merely as an engineering problem, the mechanical officer, by his continued interest, will thus continue to benefit from the operation of those installations which are already established in his jurisdiction and will support the water treating movement in a fashion that will result in more complete provisions for improving the conditions it falls to his lot to encounter.

New Books

Sampling and Analysis of Coal, Coke and By-Products; By the Chemists' Committee of the United States Steel Corporation, 184 pages, 5 in. by 7½ in., bound in cloth. Published by the Carnegie Steel Company, Pittsburgh, Pa.

In order to determine accurately the properties of coal, it is essential that the right method be used in the sampling and analysis, because of the large amount of fuel bought on the basis of the contents as determined in the laboratory. The subjects treated in this book are especially important to the railroads. The fact that the method described has been approved by the foremost chemists of the constituent companies of the Steel Corporation is sufficient evidence that the work can be considered as the best modern practice. While prepared primarily for by-product coke plants, it is well adapted for the use of railroad chemists and coal inspectors.

The first part of the book describes the method of sampling coal both at the mine and from railroad cars or belt conveyors. This is followed by a section on physical tests of coal and coke, following which the methods of making approximate analyses of coal are described. The section on ultimate analysis includes methods for the determination of the different forms of sulphur in coal. The analysis of the ash is treated in detail and methods are given for determining the clinkering temperature range. The determination of the calorific value of coal and coke by the bomb calorimeter or from the ultimate or approximate analysis is discussed. The remainder of the book covers analysis of by-products.

Letters to the Editor

[The RAILWAY AGE *welcomes letters from its readers and especially those containing constructive suggestions for improvements in the railway field. Short letters—about 250 words—are particularly appreciated. The editors do not hold themselves responsible for facts or opinions expressed.]*

A Request from Senator Couzens

UNITED STATES SENATE, WASHINGTON.

TO THE EDITOR:

I see that in your issue of March 31, you published Mr. Kruttschnitt's reply to my article, pointing out inefficient locomotive operation. In that you have expressed a desire to be fair, would you kindly publish my reply to Mr. Kruttschnitt, a copy of which I am inclosing.

JAMES COUZENS.

[Senator Couzens' reply to Mr. Kruttschnitt will be found on page 989 of the present issue under the title "Senator Couzens Replies to Mr. Kruttschnitt." See also editorial comment on page 983 entitled, "Senator Couzens' Charges of Incompetency." Editor.]

Dining Car Profits in England

LONDON, Eng.

TO THE EDITOR:

In reading your issue of March 3, 1923, there is one remark by your correspondent B. R. H., which, to one accustomed to British railways, appears very strange: that, "Finally, I think your correspondent must be a mere theorist; for he suggests making a profit on running a dining car! Where is the practical man who has ever thought of such a thing?"

Necessarily, there are individual routes which do not pay, even on British railways, though there are usually good reasons for running restaurant cars thereon, where that policy is adopted. On the whole, however, the accounts of the hotels, refreshment rooms and restaurant car departments of British railways show, almost invariably, highly satisfactory results.

Restaurant cars as run on British railways may be placed in two classes: (a) those included in standard main line trains and serving principally *table d'hote* luncheons and dinners, and, in some instances, breakfasts and suppers; and (b) those included in trains which call more or less frequently, and which, in addition to a percentage of through traffic, are specially appreciated by short-distance travelers, who, in the course of a journey of from 30 to 60 minutes duration, obtain a meal either *table d'hote* or *a la carte*, thus utilizing traveling time to avoid having to obtain a hurried meal at a refreshment room or waste otherwise valuable time before joining the train or after the journey is concluded.

In the former case, although *table d'hote* meals are taken by a considerable proportion of passengers, on many lines quite a good business is done in supplying miscellaneous refreshments, usually, but not exclusively, while *table d'hote* meals are not in progress. In any case, there are frequently first and second, if not third and fourth meals, designed to suit the convenience of passengers who may leave or join the train intermediately, besides which it is nearly always possible to order a steak or a chop, fish, etc., either instead of the *table d'hote* meal or at a time when that is not available. There are many other trains on which tea or coffee and light refreshments are served, although a dining car proper may not be run. Experience does not suggest that there is much demand for *a la carte* luncheons, dinners, etc., in place of the standard *table d'hote* meals. It must be remembered, however, that prices are always moderate, never exceeding what one would have to pay for a corresponding meal at a restaurant or hotel of comparable quality. Moreover, it is very rarely that any dissatisfaction is indicated.

In nearly all cases the restaurant cars are owned, staffed and operated by the railway companies, though Pullman cars, belonging to the British Pullman Car Company, are also run on certain lines, in which case the Pullman Car Company is responsible. In certain instances the Pullman Car Company operates Pullman cars in place of railway-owned restaurant cars, but in those cases the service given corresponds to that of the railway owned and operated cars, and no supplement is charged as in the case of Pullman cars additional to railway provided facilities.

In support of the claim that the hotels, refreshment rooms and restaurant car business on British railways is a paying proposition, I may point out that, for the year 1921 (the last for which complete particulars are available), the gross receipts from these for all railways in the British Isles were £6,932,007, against which the total expenditure was £6,466,-117, leaving a balance of £465,890. These figures cover all instances where catering is carried on by the companies. The year 1921 was not one of the most favorable, but a few figures may be given in regard to some of the largest railway companies for the year 1922. It is not possible to dissociate the hotels, refreshment rooms and restaurant car sections of the department, but it is generally recognized that in most cases directly, and in all cases indirectly, each section of the department fully justified itself. It may also be pointed out that the department is debited with all salaries and wages concerned; cost of provisions, wines and spirits consumed; repair and maintenance of hotels and refreshment rooms and of fittings, furniture, etc., of refreshment cars; heating and lighting of hotels and refreshment rooms; rents, rates, taxes and miscellaneous items, while the only addition to the total receipts from hotels and from the sale of provisions, etc., in refreshment rooms and cars is that derived from advertisements.

On the basis of last year's summer train services, the Great Western Railway, utilizing 60 restaurant cars, worked 71 restaurant car services daily, and 12 tea car services for which restaurant cars were not used. In addition, there were 13 instances of cars belonging to other railways working over portions of the system on through services. The total receipts of the hotels, refreshment rooms and restaurant cars for 1922 on this line were: £570,059; expenditure £479,828; leaving a balance of £90,231.

On the London & North Western Railway there were 103 restaurant cars; 77 services, of which 13 were jointly worked; 9 services in which other companies were concerned; and 7 tea car services. The total receipts from hotels, refreshment rooms and restaurant cars, were £1,273,217; expenditure £1,056,074; balance £217,143.

In the case of the Midland Railway, with 80 restaurant cars, 55 services were worked, of which 8 were joint. Total receipts, from hotels, refreshment rooms and restaurant cars were £1,383,104; expenditure £1,253,780; balance £129,324.

On the North Eastern Railway, with 30 restaurant cars, 20 services were worked, of which 10 were joint, there being 22 instances of "foreign" car working. Total receipts from hotels, refreshment rooms and restaurant cars £413,880; expenditure £378,739; balance £35,141.

These instances relate to the four largest railways, though there are wide differences, in that the Midland and London & North Western are extensive hotel proprietors, while the North Eastern Railway is principally concerned as regards restaurant cars in joint and through services with other lines, but in each case the figures given abundantly favor

the policy of carrying on such businesses as part of the activities of the railway companies concerned.

There are, of course, one or two instances where restaurant car and hotel business is carried on by contractors on behalf of the railway companies, but there also, though details may not be available, it is understood that the results entirely justify the policy of providing and operating restaurant cars, although the actual staffing and catering may be performed by a private firm. In any case, I doubt whether any British railway officer would regard the dining car as an "expensive luxury;" rather would he favor the argument that, if it does not entirely pay its way, it is generally worth running, any loss on particular services justifying itself in other ways, while experience, as a whole, indicates that good service can be given at moderate prices, at the same time satisfying passengers and realizing a substantial profit.

EDITOR of the RAILWAY GAZETTE (London)

The Fundamental Principle of Success

NEW YORK.

TO THE EDITOR:

In an exceedingly important locomotive terminal on a trunk line railroad where big engines have become a feature of improved operation, the roundhouse foreman in charge told me something that I must hand on to you. In apology for the broken-down machine tools with which he had to work, he said, "But this machinery, poor as it is, is better than it should be for the kind of men we get."

What more than this is needed to emphasize the importance of the editorial printed on page 895 of your issue of April 7, under the caption, "Starting Right at the Bottom," and also the editorial printed on page 896 of the same issue entitled, "The Key to the Arch—The Foreman."

Having watched railroad operation since boyhood and having seen the effects of neglect of this selection and training of men on the railroads, I am amazed that this vital matter has been overlooked as it has been overlooked. Industrial establishments the country over, the world over, armies and navies, business organizations, selling organizations, bond houses, and banks have shown the way.

It is my hope that you will get this subject before the railroads to the point of compelling attention to the most fundamental principle of success in any organization. I mean the selection, the training and the promotion of men.

G. M. BASFORD

The "Equivalent Unit" of Traffic

CHICAGO.

TO THE EDITOR:

Dr. Lorenz's letter on page 799 of your issue of March 24 is both illuminating and confusing to me. When he calls attention to the fact that the "ton-mile" means different things on different railroads and emphasizes the desirability of an "equivalent unit" of traffic, I think he has brought out a point that is generally overlooked in considering this very important question. The variable influence on both costs and income of traffic of different character is the thing that makes an "equivalent unit" necessary when trying to analyze either cost or income.

The difference in the character of traffic is usually recognizable as making only two groups, freight and passenger, whereas each should be divided into sub-groups for an accurate or complete analysis, because as wide differences in influence may exist between subdivisions of freight traffic as between freight and passenger business.

Such refinement may not be practicable with the statistics at present available, and possibly the value of such refinement would be too small to warrant additional statistics. At least it would be best to find a proper equivalent between the "average" of some unit common to all freight and another common to all passenger traffic before attempting to go farther.

I can not follow Mr. Lorenz in his statement that "The same trend would have been shown if a factor of 0, 1, 2, 3 or 4 had been used." If this is true, why worry about the "passenger miles"? Why not hit them on the head with a zero, put them out of business and forget them, develop the trend from "ton-miles" and go out and play golf.

As I figure it the statement would be true only when changes in the amount of the two kinds of traffic took place in the same ratio or by accident, but this does not happen very often. The following will serve to illustrate:

	Operating expense	Caused by: Ton miles	Caused by: Pass. miles	Factor	Equivalent traffic: Amount	Equivalent traffic: Cost per unit Mills
a.	$1,000	1,500,000	500,000	1	2,000,000	5.00
b.	2,000	3,000,000	1,000,000	1	4,000,000	5.00
c.	2,000	3,800,000	200,000	1	4,000,000	5.00
d.	1,000	1,500,000	500,000	4	3,500,000	2.86
e.	2,000	3,000,000	1,000,000	4	7,000,000	2.86
f.	2,000	3,800,000	200,000	4	4,600,000	4.35

The ratio of costs b and c, to a, is in each case 100 per cent, but the ratio of costs e and f to d, is not the same, while the only difference in the assumptions is in the factor. The ratio of e to d, with a factor of 4, is the same as b to a, with a factor of 1, but both freight and passenger traffic are assumed to have increased in the same proportions.

JOHN R. LEIGHTY,
Engineer, Western Group, Presidents' Conference Committee on Valuation.

New Jersey and New Brunswick

ST. JOHN, N. B.

TO THE EDITOR.

New Brunswick is a live community. You think that we are out of the world; that the Bangor & Aroostook Railroad marks the limit of American civilization; but that would be a mistake. I write to tell you of one incident of our up-to-dateness. I have read in the *Railway Age* about the enterprising State of New Jersey and how it cares for the interests of its public servants; but we can go them one better. New Jersey provides free railroad passes for a few clerks for journeys within the confines of its own barren wastes; but New Brunswick (not New Brunswick, N. J.,) has a scheme for carrying its legislators across the continent, without money and without price. Not even the cost of the limited quantity of pasteboard to make a pass will be involved in this proposal; the only thing needful is to write a suitable indorsement on the limited-territory passes which these statesmen already carry in their pockets. Read:

> "Fredericton, N. B., April 13.—The Legislature has adopted a resolution, moved by Hon. Fred Magee, calling upon the Canadian Parliament to have the annual passes of members of provincial legislatures extended to embrace all railway lines in Canada, instead of being good only within the borders of their respective provinces."

Just note the liberality of that plural word "legislatures." The lawmakers of British Columbia can take their vacations in the land of Evangeline while those of Nova Scotia and Quebec are exploring the woods of Vancouver. This idea of amplifying the joys and benefits of free travel is full of interesting possibilities.

B. NOSE.

Senator Couzens Replies to Mr. Kruttschnitt

Says Rates Must Be Reduced—Hopes Roads or I. C. C. Will Do It Before Congress Has to

SENATOR COUZENS apparently was not convinced by the letter written to him by Mr. Kruttschnitt in reply to statements made by the Senator a short time ago with reference to certain failings in the efficiency of railway operation. He expresses the fact that he has not been convinced and that he has been furnished no grounds for revising any of his original opinions in a letter addressed to Mr. Kruttschnitt under date of April 11, a copy of which he has sent to the *Railway Age* and asked this paper to publish.

Senator Couzens' latest communication brings the discussion being conducted by Mr. Kruttschnitt to its third stage. The first was Senator Couzens' original statement—published in part in the *Railway Age* of March 24—in which he commented on the inadequacy of railway facilities, contrasted the varying operating efficiency of various railroads and enlarged at length on the thesis that the railways had failed in recent years to secure an adequate utilization of their motive power. Mr. Kruttschnitt's reply—*Railway Age* of March 31, page 865—took issue with Senator Couzens' indictment. He maintained that increased efficiency was evidenced in the increased average train load and in the increased amount of transportation produced per unit of investment in railroad property. He denied allegations that the decrease in operating expenses in 1922, as compared with 1920 was chiefly in wages and made some comments about Senator Couzens' use of his statistics.

In his letter of April 11, Senator Couzens says that "your letter to me was not at all convincing and furnished no grounds for revising any of my original statements." He reverts to his original idea that the railroads are not utilizing their motive power adequately and quotes at length from an article in the *Railway Age* to prove it. "It is evident," he says, "that large savings could be made in operating costs if the tractive power of the railroads were kept in more efficient balance with train mileage and tonnage hauled." This failure to secure proper utilization, he believes, is due to lack of repair facilities. "To my mind," is the way he expresses it, "the present deplorable situation has also arisen in part from the failure of the railroads to keep their shop conditions in step with the larger engines and cars which have been installed."

Senator Couzens takes issue with certain statements made by Mr. Kruttschnitt concerning increased efficiency in 1922, as compared with 1920, notably as refers to decreased wages. He maintains that the decrease in the payroll was due largely to decreased wage scales; the reduction in overtime, largely due to less traffic handled, etc. He quotes statistics, but says that they fail to indicate any great betterment of operating efficiency. A section of his communication is devoted to the inadequacy of the transportation machine and the reasons why it has not been remedied. He comments on the attitude of the public and of the employees, asking why they have refused to accept the railway managements' transportation program. In conclusion, he says, "You have called upon the householder, shopkeeper, factory manager, farmer and shipper for co-operation. . . . . but what do the railroads offer in return for this co-operation? Do they offer reduced transportation charges, and, if so, how much? . . . . We are going to have a reduction in transportation charges. . . . . I hope that the railroads and the Interstate Commerce Commission will do this before Congress is compelled to."

Senator Couzens' letter was dated April 11. He also gave out for release in Monday afternoon papers of this week a statement embodying some of the same details as contained in his letter. The letter follows in full in its original form, except for the insertion of the subheads:

Senator Couzens' Letter to Mr. Kruttschnitt

I desire to reply in detail to your letter of March 26, because I am sorry to say that my conclusions are that your letter to me was not at all convincing and furnished no grounds for revising any of my original statements.

It is a commonplace of railroad history that during past years railroad managements have apparently made great gains in operating results by increasing the tractive power of locomotives and thus making possible lower outlays for each ton handled one mile. Heavier train loading has been the fetich of railroad operating officials. Along with it has also gone, as is well known, a policy of adding to the capacity of freight cars, of reducing grades and eliminating curves, and of constructing stronger roadbed and laying heavier rails. The net result has been to reduce operating costs or to offset the tendency for certain items of operating expense to increase. These facts are known to all men and it was not my purpose to detract in the slightest from the credit due to the operating officials who have been responsible for any advantages from this policy which have accrued to the railroads in the form of gains in operating economies and efficiencies.

As a matter of fact, however, this condition of affairs was not discussed by me in the statement which I issued. Your injection of it into the discussion and the emphasis which you have placed upon it are irrelevant and superfluous, and does not at all touch the important point which I raised. If you will refer to my statement you will see that I assumed as a preliminary to what I said, that because of the development of locomotives of greater tractive power, larger cars, etc., grater train loads were being transported now than formerly.

Did Not Grasp Real Point

The real point which I made and which you evidently did not grasp was that there had been no gain in real tractive efficiency during the period 1903-1920, or in other words, that there had been no increase in the number of ton-miles for each 1,000 pounds of tractive effort exerted. I also endeavored to point out that there was still great room for more efficiency in the use of motive power and that the records showed actually a decline in the miles made by each locomotive a year during the period 1903-1920. Although the train load may have greatly increased, it is plain that there must be gains in tractive efficiency and locomotives must be kept as constantly in service as possible if the real economical use of these machines is to be realized. Obviously, a locomotive when not in use represents a non-earning capital outlay, and, therefore, the more constantly the locomo-

tives owned by the railroads are in service the greater the earnings are and the less need there is of additional locomotives.

Assuming the past history of the operation of the railroads as we have it, I stated that in the present transportation emergency there was too little discussion of operating efficiency and too much stress laid upon wage reductions as a means of reducing operating costs. In support of the view that additional operating economies were possible, I pointed out the wide discrepancies in operating performance shown by representative railroads. Making all allowances for the physical characteristics of different railroads—as to whether they traverse rough mountainous or open country, there can be no doubt that there are large opportunities for operating economies still open to the managements of the greater number of railroads. The variation between the best and worst showing as to locomotive performance in 1920, by way of example, was more than double. Physical characteristics of railroads, the quality of coal used, and similar factors set forth by you cannot explain such wide discrepancies in operating performance.

Quotes at Length from Railway Age Article

I can find nothing in the statistics submitted by you or in any official statistics to impair my conclusions. Moreover, not only in my use of official statistics, but in my conclusions, I find myself abundantly corroborated by the best sources of information outside of official records. No more authoritative source of information from the railroad standpoint could, I believe, be put forward than the *Railway Age*. This publication supports my position.

The article to which I would refer you is found in the *Railway Age* for February 11, 1921 (Vol. 70, page 359), and bears the following title and sub-title:

"Are Modern Locomotives Efficiently Used?"

"Ton Mile Output Fell Behind Increasing Tractive Capacity for More Than a Decade Prior to the War."

* * *

In substantiation of my own conclusions and in refutation of the extraneous factors which you have introduced into the discussion, I quote from this article as follows:

"These comparisons all attest the remarkable increase in the effectiveness of locomotives as operating factors during this decade. But the efficiency with which these locomotives were utilized as producers of ton miles *did not keep pace with the increases in capacity*. This is very evident from the fact that the net ton-miles per 1,000 pounds tractive effort decreased from 260,000 in 1903, to 222,000 during the fiscal year 1913, a reduction of about 14.5 per cent. Considering the remarkable increase in the net train loads, it is evident that this loss must be accounted for by the reduction in freight train mileage obtained from each locomotive. An average of 21,800 freight train miles was obtained from each freight locomotive in service in 1903, while in 1913 the average was only 17,800, a reduction of 18 per cent. On the basis of the results obtained in 1903, *this is equivalent to a loss of more than two months service per year for each freight locomotive in the United States.*

"Undoubtedly large modern locomotives require more frequent shoppings and more attention to running repairs than the motive power of seventeen years ago. But it seems incredible that the motive power in service today, made up as it is of units representing every stage of development for at least twenty years, is inherently incapable of rendering in a year more than the equivalent of service that was obtained in ten months from the locomotives of seventeen years ago.

"May not much of this loss be attributed to the failure of the shop and engine terminal facilities to keep pace either with the increasing numbers or increasing weights of locomotives?

"During the period under consideration the number of locomotives has increased more than 50 per cent and the average hauling capacity between 65 and 70 per cent. But neither of these increases alone is a measure of the increases which should have been made in facilities for caring for motive power. *The combined effect of the two is that there is two and one-half times as much tractive capacity to be maintained, repaired and turned as there was seventeen years ago, and in some respects this capacity requires more attention per tractive unit than did that used at the beginning of the period.*

"Is is not possible that the failure to provide more than a small part of the needed shop and terminal capacity is costing the railroads the carrying charges on from $100,000,000 to $200,000,000, invested in idle locomotives which, had it been invested in shops and terminals, would have earned a return in reduced maintenance and operating costs?

"Freight train miles per locomotive have decreased 18 per cent since 1903. Does not this represent a loss of over two months service a year for each freight locomotive, or an investment in idle locomotives of from $100,000,000 *to* $200,000,000?

"Total locomotive tractive capacity has increased two and one-half times since 1903. Could not this investment, if used to help keep shop and terminal facilities abreast of the increasing locomotive capacity, have earned a large return upon itself by reducing maintenance and operating costs?"

To this article is also appended complete statistics and graphs covering the period 1902-1920. If you will refer to these statistics, which are based on compilations made by the Interstate Commerce Commission, the Bureau of Railway Economics, which I understand is supported by the railroads, and the American Railway Association, Car Service Division, also maintained by the railroads, you will see that they completely corroborate my assertions that during the period 1903-1920 freight train miles per locomotive have decreased 20 per cent, and that there was no gain in ton miles per 1,000 pounds of tractive effort during the same period.

Proper Repair Facilities Lacking

It is evident that large savings could be made in operating costs if the tractive power of the railroads were kept in more efficient balance with train mileage and tonnage hauled. To my mind, the present deplorable situation has also arisen in part from the failure of the railroads to keep their shop conditions in step with the larger engines and cars which have been installed. Repair facilities have been permitted to decline relative to the weight and tonnage of locomotives.

In opening your communication you assert that there has been a great reduction in labor costs and in the number of railroad employees, relative to the traffic carried, and attribute this to "efficiency and economy of operation." As a matter of fact, the statistics published by the Interstate Commerce Commission do not support the figures cited by you. Thus (in the fourth paragraph) you say:

"In the year 1922 the railroads carried a traffic not greatly less than that of 1920. To do this they averaged 1,645,237 employees in 1922 as against 2,012,600 in 1920."

The Decreased Pay Roll

The Interstate Commerce Commission figures show that the 1922 traffic, instead of being, as you say, "not greatly less than that of 1920," was approximately 19 per cent less. Now, it appears that the decrease in the number of employees between these years—namely, from 2,012,600 in 1920 to 1,645,237 in 1922, as given by you—was also 19 per cent. This indicates clearly that the railroads in 1922 were employing exactly the same number of employees per traffic unit as they were in 1920, and that in consequence absolutely no economy was effected in this direction.

In view of this fact, it is evident that there must be some fallacy in your further statement that the compensation paid railroad labor decreased one billion dollars, but that only $350,000,000 was due to decreased wages. If the relative number of employees was the same in 1922 as in 1920, it is evident that the decreased compensation to labor would have been due wholly to decreased wages to the individual workers. Of course, it is possible that the decrease was not wholly due to actual wage cuts. My own thought is that a part may have been due to the reduction of overtime payments to employees, but, from the evidence at hand, it seems to me highly questionable whether this reduction of overtime was due to efficiency of operation. In the first place,

the decision of the Railroad Labor Board, which made extra pay for overtime by the maintenance of way men begin only after 10 hours' work instead of 8, amounted to an actual wage reduction. In the second place, the reduction of overtime work was a natural result of reduced traffic. This was clearly pointed out by Mr. Daniel Willard, president of the Baltimore and Ohio Railroad, in his testimony before the Interstate Commerce Committee of the United States Senate in 1921. He said (Hearings page 161):

Quotes Daniel Willard

"Now, it so happened in 1920 that the carriers, in the East at least, were working under the most extravagant circumstances and beyond their economic capacity. . . . . The railroads were attempting to do what was beyond their capacity to carry."

Again, referring to the Baltimore and Ohio Railroad, he says:

"The point is this, that we had so many trains on the road that they got in each other's way, resulting in delays, more accidents, and the men were tired, and the whole operating process was bad railroading, because we were trying to put a quart in a pint cup, and could not do it."

It thus appears highly probable that the wage saving effected in 1921 and 1922 through a great reduction in overtime work may be attributed primarily to the simple fact of reduced traffic and not to operating efficiency. If, as Mr. Willard says, the railroads in 1920 were working beyond their economic capacity, have we any reason to believe that the railroads are now any better equipped to handle a similarly large traffic when the time comes, as it surely will?

There is another point, which has also a very forcible bearing upon the question of decreased labor costs. In 1921, I find that the Interstate Commerce Commission for the first time required the railroads to divide and report separately their outlays for labor employed in actual operation and on capital account. The returns for 1921 showed a subtraction from the total wage bill of more than $150,000,000 for employees at work in new capital outlays. Unless you have taken into account these changes in methods of reporting and tabulation in comparing reduced labor costs in 1922 with 1920, it would be quite a serious weakness in your contention.

There is still another very important point bearing upon this aspect of the matter which was recently mentioned by the statistician of the Interstate Commerce Commission in officially commenting upon recent railway returns. He states that in analyzing operating performance that "the extensive repair of equipment in private shops during 1922 should be considered." It is clear that this practice in 1922, which evidently arose from the shopmen's strike, would, as compared with former years, show a relatively greater decline in direct labor outlays which would be absorbed in more general charges to operating expenses.

The Operating Performance in 1922

As regards your statement of the advances made in actual operating performance in 1922 as compared with 1920, I can find small justification for it. As the Interstate Commerce Commission statistics for 1922 have not been issued, I have had recourse to the bulletins issued by the Bureau of Railway Economics, which I understand are paid for and fully sanctioned by the railroads. From these bulletins I have taken off the following comparative showing as to operating factors for the period 1920-1922:

OPERATING STATISTICS OF CLASS I RAILWAYS
(Information from Bureau of Railway Economics)

	1920	1921	1922	% Change 1920 to 1922
Freight cars per train (inc. caboose)	36.3	38.4	38.5	5.2 inc.
Gross tons per train (exld. loco. and tend.)	1,442	1,435	1,466	1.7 inc.
Net tons per train	708	651	677	4.4 dec.
Train speed (trn. miles per trn. hour)	10.3	11.5	11.1	7.8 inc.
Gross ton miles per train hour (excl. locomotive and tender)	14,877	16,567	16,213	9.0 inc.
Net ton miles per train hour	7,302	7,510	7,490	2.6 inc.
Car miles per day	24.9	22.4	23.5	5.6 dec.
Tons per car (rev. and non-rev.)	29.3	27.6	26.9	8.2 dec.
Per cent loaded to total car miles	67.9	63.0	67.2	1.0 dec.
Per cent unserv. freight cars	7.0	13.2	12.8	82.9 inc.
Per cent unserv. loco. (freight)	[1]24.3	24.0	25.5	4.9 inc.

[1]Excludes returns from New York Central—data not available.

By refering to the foregoing table you will see that in 1922, as compared with 1920, although railroad operating officials succeeded in getting 5.2 per cent more cars and 1.7 per cent more gross tonnage to a freight train, on the other hand, the revenue producing train load or the net tons per train actually declined 4.4 per cent. Some economies in operation, especially a reduction in overtime wage payments, as I have stated, was probably secured from increasing the train speed 7.8 per cent. As to car and locomotive performance, you will see that efficiency in the use of cars in 1922 was less than in 1920, while the per cent of unserviceable freight locomotives was 4.9 per cent more in 1922, and of unserviceable freight cars 82.9 per cent more. Tons per freight car, the average miles traveled by each car a day, and the proportion of loaded cars were less in 1922 than in 1920. This comparative showing, I believe, more than justifies my original declaration that there is great room for improvement in operating efficiency and does not bear out your claim as to recent improvements in operating methods.

A Ten-Ton Load on a Five-Ton Truck

Aside from any statistical or technical details, however, as to gains in railroad operating efficiency, the facts which I mentioned in my original statement are undoubtedly the expression of the fundamental cause of the present plight of our transportation system. Railroad facilities, as is generally conceded even by railroad executives, are entirely inadequate not only to meet the business needs of the country and, consequently, are a hindrance to proper commercial and industrial expansion, but also are so inadequate that they cannot handle economically and efficiently the business which is actually offered to the railroads. The very existence of transportation demands beyond the capacity of the carriers to handle, despite all the efforts of operating officials, produces added increments of costs to each unit of traffic offered in excess of the capacity of the railroad to operate economically. The railroad operating officials are in the same impossible position as a teamster would be who would endeavor or who would be forced to haul a ten-ton load upon a well-worn five-ton truck. However commendatory his efforts might be towards doing the job at low cost, he could not haul ten tons as cheaply as he could five tons upon a five-ton truck in good condition. Despite all he could do his overloaded, old truck would make less miles per day and consume more fuel, and, to make the direct comparison with freight locomotive miles per month or year, the truck, as in the case of freight locomotives, could not exert its full tractive power or be on the highways as many days as it should be unless proper shop facilities were available for overhauling it quickly and keeping it constantly in good running order.

Misguided Program of High Freight Rates

The financial managements of the railroads have practically said since 1920 that, pending the development of greater net income, they would not underwrite new outlays of much needed capital for our run-down transportation system. Instead of a far-sighted policy, a narrow and misguided program of maintaining high freight rates and thus requiring the public to pay for the physical rehabilitation of the railways has been adopted. Furthermore, railway employees have been told that their part in this policy of rehabilitation is to accept reductions in wages, and railway operating offi-

cials have been expected to perform transportation miracles with inadequate yards, tracks and terminals, and in some cases, of antiquated shops for the upkeep of cars and motive power.

Railway employees and shippers have most vigorously protested, however, and have refused to accept this transportation program. While my mind is open on the question and I have not reached any final conclusions upon the problem, I frankly state that my studies so far have led me to believe that the fundamental attitude of railway employees and the public is well grounded. Railway operating officials are undoubtedly handicapped by misguided or improper financial policies. They have not been given the necessary facilities to handle business, or the funds essential to use to their maximum efficiency the facilities which have existed.

These are the facts and the conclusions which impress me forcibly as the result of my inquiries thus far. My conviction also is that the time has come to drop all propaganda, half-facts, or misrepresentations, and to face the truth as it is. I believe the public has been deluged to the point of nausea by propaganda from all interested sources, and it will no longer be tolerant of anything but the truth. The business and traveling public have apparently decided that the transportation problem must be met and solved properly in a spirit of common counsel which would say, "come, let us reason together and let us face the facts sincerely and act upon the facts as they are."

Railroad Point of View a Disappointment

During the period of increasing controversy which has elapsed since the passage of the Transportation Act in 1920, the point of view of railroad management has been a growing disappointment to me. Its main features have been an attack upon the record made by the war-time Railroad Administration, a general attitude of intolerance towards public control in all its forms, the tendency to blame all the ills of the transportation industry upon public regulation both past and present, and a policy which holds that all substantial reductions in operating costs are dependent upon commensurate reductions in rates of compensation of railway employes. There has been nothing constructive in the railroad point of view, but a general demand for a "Let Us Alone and Hands Off" policy.

Even during the period of high prices of 1920 and 1921, there was no protest by railroad managements against extortionate prices which prevailed for fuel, rails, and all forms of railroad supplies. In the extensive propaganda carried on by the railroads for wage reductions or the elimination of working standards of employees, I have not seen any consideration given to the question as to whether the earnings of certain classes of employees were adequate or whether certain working standards were desirable. It has all been a matter of expense. The fundamental human and social considerations of an enlightened public policy have been ignored, as well as the economies and efficiency which arise from a spirit of co-operation rather than hostility on the part of industrial workers towards management. Neither have I observed any adequacy on the part of railroad management of any plans of consolidation or unified action which would reduce traffic costs and charges or facilitate transportation services to the public.

Last Friday there was published a statement reported to have come from the Association of Railway Executives, which avoids any reference whatever to the now existing condition of the railroads and their equipment. It fails to mention anything about the now existing condition of the cars and the locomotives, although the first and second articles of your program indicate that great effort is to be made to reduce the number of cars and locomotives out of service through bad order to the normal amount.

Lehigh Valley Arraigned

Mr. Loomis, president of the Lehigh Valley Railroad and chairman of the Committee on Public Relations of Eastern Railroads, also issued a statement, in which he said: "The railroads of the United States have set out to effect a complete comeback to normal transportation conditions," and it seems opportune to point out that the Lehigh Valley Railroad has a long way to go, because on February 1, 1923, the reports showed that 46.3 per cent of their locomotives were out of service through bad order. The number of bad order locomotives in July, 1922, was only 20.5 per cent, so you will see from then on up to February of this year, there has been an increase of over 100 per cent in bad order locomotives.

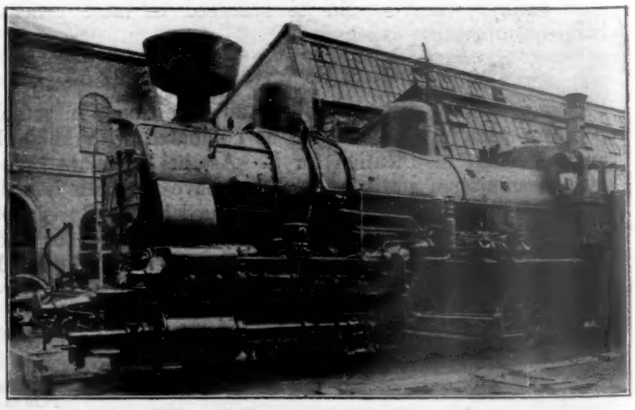
So that the public may have a comparison between roads, I point to the fact that the Baltimore & Ohio, in February this year, only had 22.3 per cent bad order locomotives. Why has the Lehigh Valley twice as many bad order locomotives as the Baltimore & Ohio? Why is it that the Lehigh Valley, in January, showed that their operating expenses in relation to their income was 112.30 per cent, while the Baltimore & Ohio showed for the same month 75 per cent? Why does the Delaware & Hudson show 109.40 per cent for the same period?

I do not believe that the mere purchase of a billion and a half of railway equipment is going to improve the bad order condition of your cars and locomotives. It may temporarily show a good operating condition, but the public is going to pay for these bad order cars sooner or later. You cannot be efficient by not keeping up your equipment or by scrapping it for new equipment because of inadequate shop facilities.

Mr. Loomis says: "Despite continued high prices for fuel and material and supplies, the railroads cut over a billion dollars off their annual cost of operation." If this be so, how much of it are the public to get in lower transportation costs?

Reduced Transportation Charges?—If So, How Much?

You have called upon the householder, shopkeeper, factory manager, farmer and shipper for co-operation, which I think they should give and am sure they will, but what do the railroads offer in return for this co-operation? Do they offer reduced transportation charges, and, if so, how much? You must establish a standard or a goal which you are to reach, so that when Congress meets again, they will know whether you have made good. We are going to have a reduction in transportation charges and it is up to the railroads and the Interstate Commerce Commission to provide it in view of all of these savings, otherwise Congress will have to see to it that transportation charges are reduced. I hope that the railroads and the Interstate Commerce Commission will do this before Congress is compelled to.



An Austrian Freight Locomotive with a "Dabeg" Feed-Water Heater

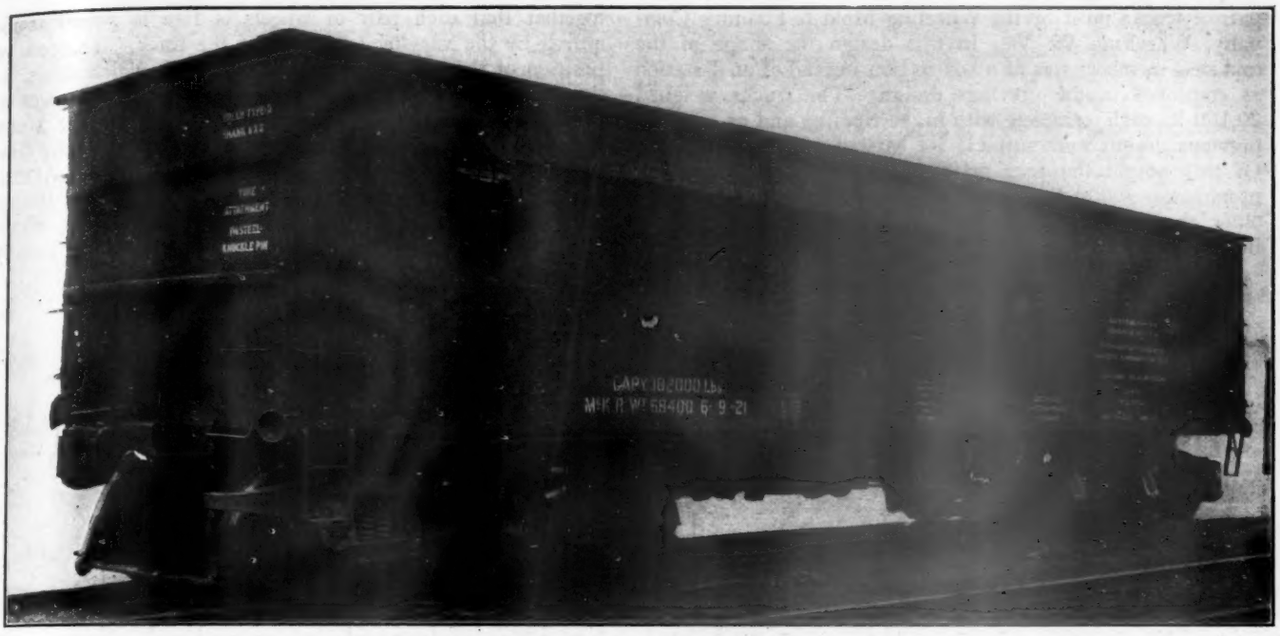


Fig. 1—100 Ton Gondola Coal Car with Boyden Six-Wheel Co-ordinating Trucks

The Boyden Six-Wheel Co-ordinating Truck

Designed To Provide Extreme Flexibility in Order To Minimize Curve Resistance and Flange Wear

A SIX-WHEEL TRUCK for freight cars, in which each axle is free to assume a true radial position when passing around curves has been designed and built recently by the Boyden Steel Corporation, Baltimore, Md. The object in developing this new type of truck has been to minimize resistance and wear of wheels and rails on curves at the same time providing a simple, durable construction easy to build and maintain.

The first Boyden co-ordinating truck was the conception of John C. Boyden. After a model had been made, a company called the Boyden Co-ordinating Car Corporation, Baltimore, Md., was organized to carry on the initial development work.

Drawings were completed, patterns made, castings produced and a full sized truck assembled at the Camden Iron Works, Camden, N. J., in 1919. This truck, which weighed 22,000 lb., was submitted to many tests to determine its action in passing around various curves.

Being satisfied from these tests that the principle of the design was a correct one, steps were next taken to build two trucks for further tests under a car. A number of modifications in the patterns used for the second design, which was intended for a 120-ton capacity freight car, reduced the weight of a complete truck to 19,600 lb. Castings were made by the Pittsburgh Steel Foundry Company and the trucks assembled at the plant of the Cambria Steel Company, Johnstown, Pa. They were placed under a 100-ton capacity coal car obtained from the Chesapeake & Ohio and, with the car loaded to its full capacity, runs were made around the sharpest curves and over the poorest track available at the car plant. This work was carried on in 1920 and 1921.

Following these tests the third design was made and a

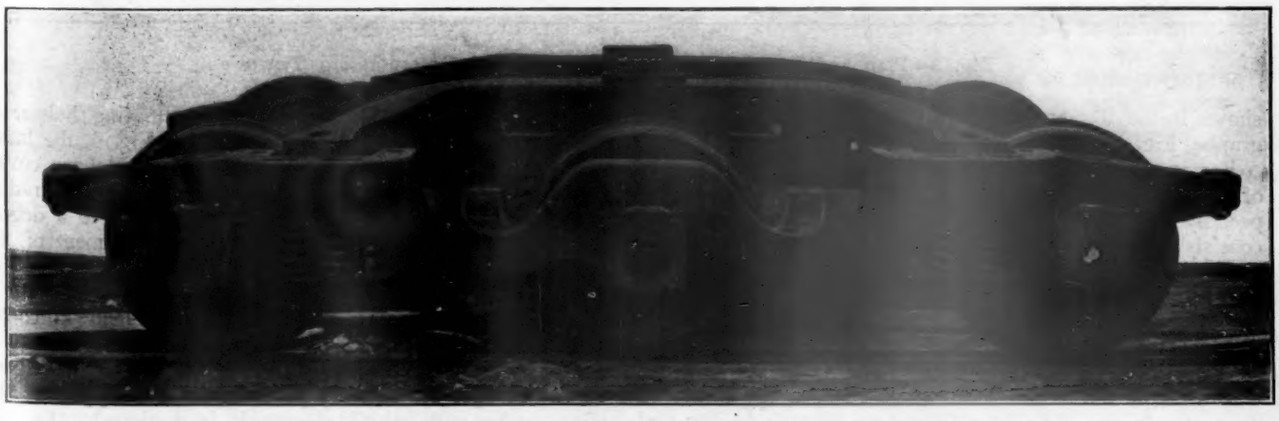


Fig. 2—Boyden Six-Wheel Truck—Brake Rigging Not Applied

pair of trucks built by the Wheeling Mold & Foundry Company, Wheeling, W. Va., in this design the shape of the cast steel members was of a box section instead of an I-section as employed in the previous design. The trucks weighed 20,100 lb. each, complete with brake rigging, and as with the previous design were suitable for cars of 120 tons capacity. Of this weight the four main steel castings made up approximately 9,000 lb. The trucks were substituted for the older ones under the Chesapeake & Ohio 100-ton coal car in 1922 and the car placed in service. This is the design

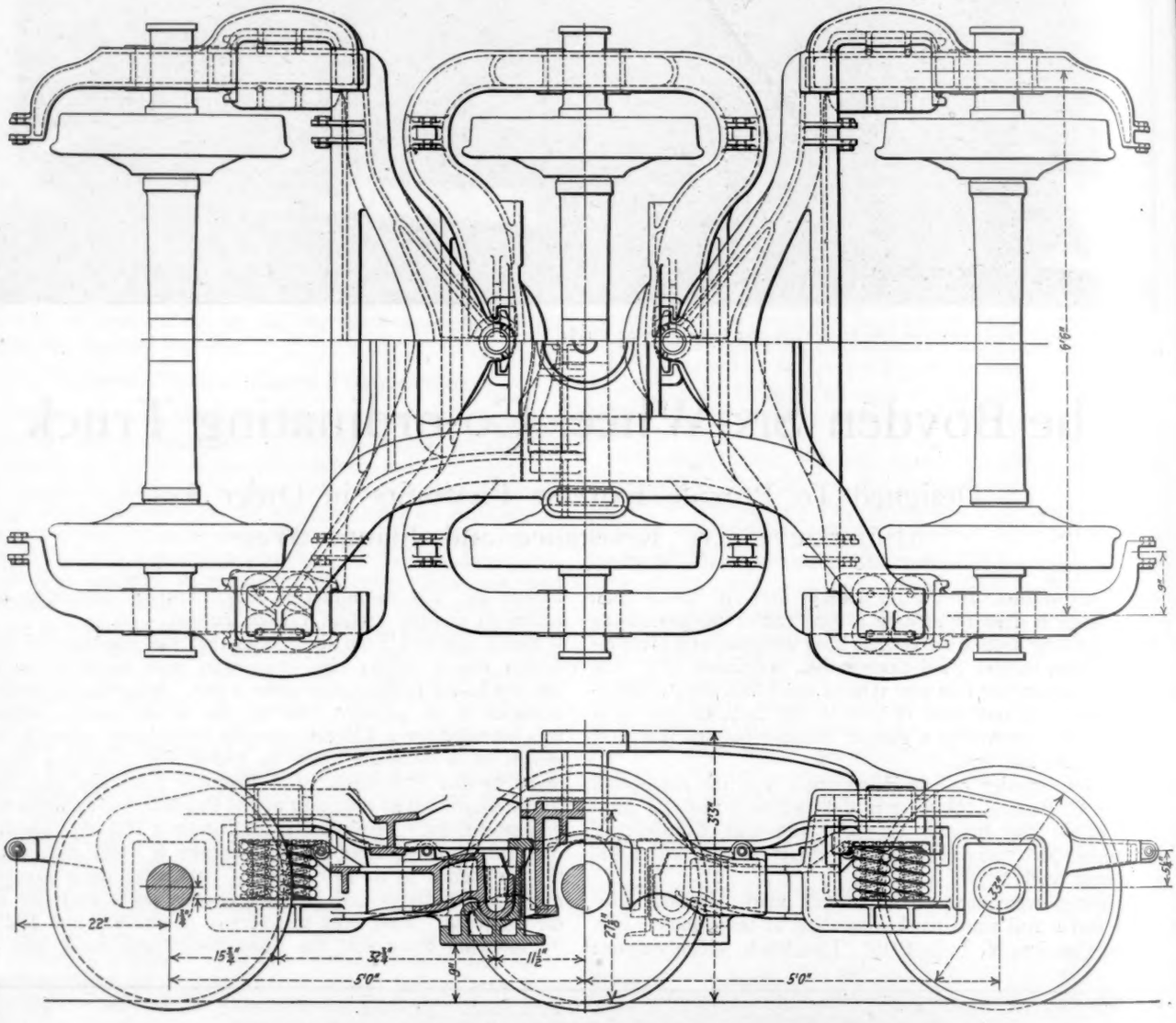


Fig. 3—Plan and Elevation of Boyden Six-Wheel Co-ordinating Truck

shown in the accompanying drawing, Fig. 3, and the photographs, Fig. 1 and Fig. 2.

For an understanding of the principles and the operation of the Boyden co-ordinating truck, attention is directed especially to Fig. 4, Fig. 5 and Fig. 6. The truck frame consists of four substantial steel castings, a center frame, two end frames and a co-ordinating bolster, shown detached in Fig. 4. Wheels, axles, journal boxes, brasses, wedges, etc., are of the standard types now in general use. The center frame which carries the boxes for the middle axle contains two large sockets. Each end frame is provided with an arm and a ball joint which rests in the socket on the center frame. The three frames are thus so flexibly tied together that each pair of wheels is free to swivel as required by the varying curvature of the track. The relative position of the parts is indicated in Fig. 5, which shows the three frames with their journal boxes, wheels and axles on a curve. The co-ordinating bolster sets over the center frame and acts as a guide to the center axle. Its four arms rest on springs carried in pockets on the end frames. At each of the four points there is a nest of four double springs with a common upper spring seat. The location of the spring pockets is such that the weight is distributed equally between the different axles. The co-ordinating bolster is shown detached in Fig. 4 and in place in Fig. 6, the latter illustration showing the position occupied on a sharp curve. It is so designed as to permit its center to take a radial horizontal motion as well as a vertical motion to a degree sufficient to take up any irregularities in movement of the several parts of the truck. The truck may be described as consisting of two pony trucks placed back to back on a common supporting member and all parts held in co-ordination by a four-armed bolster frame.

The axles are placed 5 ft. apart, making the wheelbase 10 ft. Hanger brackets are provided for the support of the clasp brake with which the truck is equipped. Journal

boxes of standard design are bolted to the truck frames.

In working out the details of this truck the endeavor has been to produce a design of such flexibility that the car could be hauled around the sharpest curve with a minimum of resistance and consequently of rail and flange wear. The equalization of load, durability and accessibility of parts, simplicity of construction and ease of assembly, together with smoothness in running have also been considered.

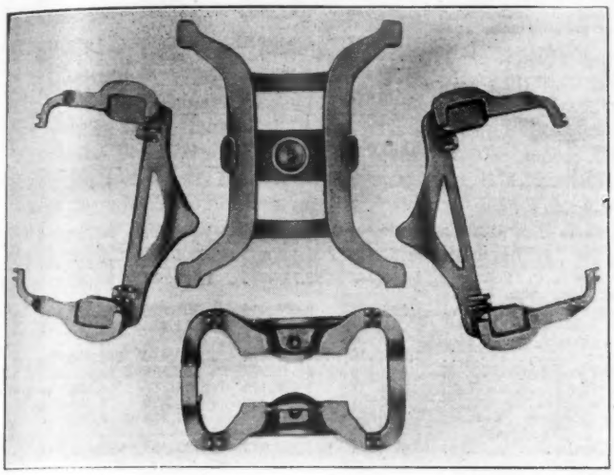


Fig. 4—Center Frame, End Frame and Co-ordinating Bolster

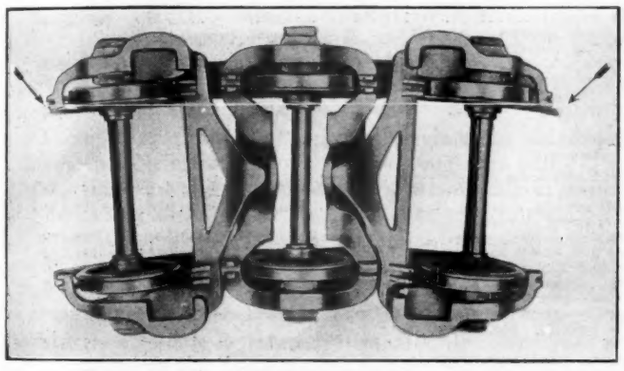


Fig. 5—Frames Assembled with Wheels and Axles Showing Position on a Curve

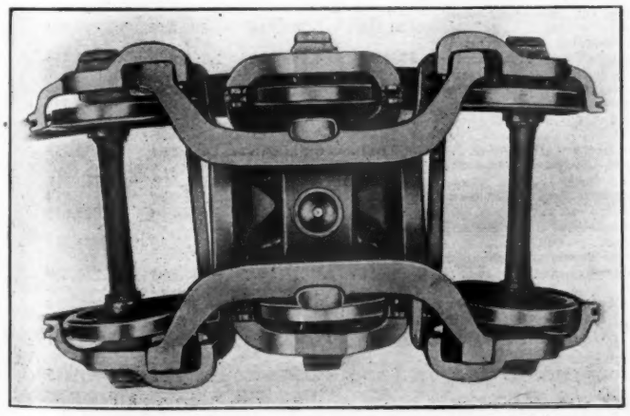


Fig. 6—Top View Showing Co-ordinating Bolster and Frames

After the car equipped with the last design of trucks had been thoroughly tested out around Wheeling, W. Va., arrangements were made for a test run under ordinary train conditions over the Baltimore and Cumberland divisions of the Baltimore & Ohio, the car running west as an empty and returning loaded. The run of 330 miles lasted from May 29 to June 2, 1922. A dynamometer car was attached ahead of the car being tested which was at the rear of the train, and observations made by a corps of inspectors. Speeds ranged up to 44 m. p. h. and in both light and loaded conditions the action of the car either on straight or curved track is said to have been very satisfactory. The vertical movement of the car body was reported as relatively slight with little rolling action. The car has since been in intermittent service on the Chesapeake & Ohio.

These trucks are now controlled by the Boyden Steel Corporation, Baltimore, Md., which has taken over the rights of the old Boyden Co-ordinating Car Corporation.

I. C. C. Calls for Information on Economy and Efficiency

WASHINGTON, D. C.

THE INTERSTATE COMMERCE COMMISSION, in connection with its investigation, No. 14,556, of the efficiency and economy in management of common carriers, which apparently goes largely to the question whether it is more efficient to fight than to settle a strike, has issued an order directing the 51 railroads having annual operating revenues of $25,000,000 or more to furnish to it by May 25 answers to a questionnaire of 29 questions calling for detailed statistics regarding the handling of traffic, locomotives and cars, and the labor conditions resulting from the shopmen's strike of last year.

Five of the questions are under the heading of "Traffic" and ask for details regarding all freight embargoes, exclusive of embargoes against individual consignees, during the period from July 1, 1922, to March 31, 1923, the cars of freight loaded and received from connections, freight train miles, gross ton miles, net ton miles, freight cars moved daily, freight cars left over daily to be moved, and percentage of cars of various classes furnished to cars ordered, etc. Under the heading of "Locomotives," there are nine questions, most of which contain several subdivisions, dealing with the condition as to repairs during the period mentioned, locomotive failures, locomotives stored, tractive effort, new locomotives received and locomotives retired, and locomotives on order. Two questions deal with the number and classification of employees engaged in making classified and unclassified repairs to locomotives. Another question calls for a tabulation by months from January 1, 1922, to March 31, 1923, of the locomotives repaired by respondents' own employees and another calls for similar information as to repairs made by other companies, firms or individuals. Another question asks regarding the locomotive parts or appurtenances other than boilers sent to outside shops to be repaired or finished, with the names of the firms, companies or individuals, and the extent to which it was the practice of respondent to send to outside shops for such work prior to July 1, 1922. Question 15 calls for detailed costs per freight train mile and per thousand gross ton miles. There are also six similar questions under the heading of "Cars."

Under the heading "Labor," there are seven questions in which "if any strike occurred upon respondent's line which was or became effective on or subsequent to July 1, 1922," the roads are requested to state such details as the number of striking employees, classified; if any such strike has been settled, the date and terms of settlement and whether or not they have been generally accepted by the striking employees, and number in each class who have returned to work pursuant to the settlement, etc. If the strike has not been settled by agreement, the commission desires to know how many

striking employees in each class had returned to work prior to April 1, 1923; upon what terms and conditions, if any, the respondent is willing to have the striking employees return to work, and upon what terms and conditions disclosed to respondent, if any, the striking employees would be willing to return to work. Another question deals with the number of employees entering the service in each class during each month since June 1, 1922, the amounts expended for quarters, lodging, subsistence and clothing of employees, and expenditures for guarding, patrolling and policing respondent's property or employees. Information is also asked regarding detective or other agencies employed and the amounts paid to them; also as to the amount of overtime paid. Under question No. 29 respondent may submit any other facts which it believes, from the standpoint of efficiency and economy, should be considered by the commission in connection with the answers to this questionnaire. A form of affidavit is given in which responses to the questionnaire should be verified.

Freight Commodity Statistics for 1922

WASHINGTON, D. C.

THE INTERSTATE COMMERCE COMMISSION has issued a statement showing by districts the freight tonnage transported by Class I steam railways for the year ended December 31, 1922. It should be noted that the figures in this statement will not agree exactly with the corresponding totals of the four quarters already published, on account of adjustments made in the reports after the quarterly figures had been published.

Below will be found a comparison, by general classes of commodities, of the tonnage transported in 1922 with that transported in 1921 and 1920:

Classes of commodities	Number of tons originated: Year ended Dec. 31, 1922	Year ended Dec. 31, 1921	Year ended Dec. 31, 1920
Products of agriculture	111,782,598	114,068,706	110,839,554
Animals and products	26,234,896	24,263,008	26,594,856
Products of mines	532,398,943	511,270,449	712,154,458
Products of forests	89,071,085	76,419,241	100,765,537
Manufactures and miscellaneous	220,445,310	172,169,145	251,864,290
Merchandise—All L. C. L. traffic	43,176,746	41,992,011	53,202,296
Total	1,023,109,578	940,182,560	1,255,420,991
	Total tons carried		
Products of agriculture	221,847,119	222,678,348	220,049,724
Animals and products	45,089,929	41,777,754	44,853,503
Products of mines	922,403,418	878,224,636	1,209,097,673
Products of forests	172,928,867	148,042,825	195,579,878
Manufactures and miscellaneous	426,287,898	332,991,002	494,556,078
Merchandise—All L. C. L. traffic	70,927,245	67,048,130	89,901,495
Total	1,859,484,476	1,690,762,695	*2,259,983,278

* Includes 5,944,927 tons for which distribution by classes of commodities was not furnished.

The detailed statistics for the United States are as follows:

Commodity	Revenue freight originating on respondent's road: Number of carloads	Number of tons (2,000 lbs.)	Total revenue freight carried: Number of carloads	Number of tons (2,000 lbs.)
Products of Agriculture:				
Wheat	617,507	24,802,796	981,542	39,398,645
Corn	502,202	19,275,378	913,064	34,611,636
Oats	254,268	7,646,848	510,672	15,331,804
Other grain	152,038	5,245,341	276,641	9,285,381
Flour and meal	428,885	10,695,121	975,902	24,771,469
Other mill products	415,305	9,000,627	902,688	19,711,025
Hay, straw, and alfalfa	463,151	5,722,058	819,834	10,127,230
Tobacco	79,657	884,173	136,487	1,576,288
Cotton	267,292	3,067,387	601,877	7,535,129
Cotton seed and products, except oil	158,163	3,548,119	238,478	5,346,529
Citrus fruits	74,121	1,141,154	308,482	4,833,488
Other fresh fruits	365,157	5,063,954	1,132,264	15,780,024
Potatoes	265,350	4,829,225	695,835	12,852,128
Other fresh vegetables	179,717	2,324,637	527,231	6,760,557
Dried fruits and vegetables	45,148	1,154,312	114,162	2,947,556
Other products of agriculture	260,409	7,381,468	427,895	10,978,230
Total	4,528,370	111,782,598	9,563,054	221,847,119
Animals and Products:				
Horses and mules	43,436	490,927	68,357	779,469
Cattle and calves	827,846	9,571,435	1,170,480	13,496,190
Sheep and goats	118,327	1,158,854	187,694	1,884,233
Hogs	603,179	5,795,062	778,152	7,652,621
Fresh meats	202,938	2,613,781	481,181	6,054,012
Other packing-house products	128,465	2,048,956	274,027	4,429,479
Poultry	26,487	291,762	94,157	1,014,136
Eggs	50,461	565,192	128,979	1,463,195
Butter and cheese	41,006	507,384	105,288	1,324,390
Wool	30,940	359,861	76,623	934,744
Hides and leather	53,847	1,081,647	125,357	2,607,370
Other animals and products	101,047	1,750,035	195,307	3,450,090
Total	2,227,979	26,234,896	3,685,602	45,089,929
Products of Mines:				
Anthracite coal	1,020,301	48,823,014	1,684,608	80,770,594
Bituminous coal	5,654,340	287,235,288	10,751,874	544,004,619
Coke	448,381	15,437,961	716,898	24,502,214
Iron ore	1,017,747	52,739,885	1,551,661	84,602,455
Other ores and concentrates	189,972	9,677,415	300,836	14,619,101
Base bullion and matte	11,214	495,465	31,476	1,405,741
Clay, gravel, sand, and stone	2,135,436	102,677,414	2,952,610	139,436,476
Crude petroleum	165,296	5,935,997	332,896	11,615,287
Asphaltum	56,787	1,900,426	139,211	4,679,549
Salt	124,995	3,244,909	310,090	8,099,175
Other products of mines	100,776	4,231,169	211,213	8,668,207
Total	10,925,245	532,398,943	18,983,373	922,403,418
Products of Forests:				
Logs, posts, poles, and cord wood	1,190,961	35,633,637	1,361,861	40,138,946
Ties	129,808	3,760,299	216,366	6,357,377
Pulp wood	138,052	3,931,097	253,038	6,983,736
Lumber, timber, box shooks, staves, and headings	1,653,624	43,512,275	4,407,766	114,964,478
Other products of forests	105,933	2,233,777	206,411	4,484,330
Total	3,218,378	89,071,085	6,445,442	172,928,867
Manufactures and Miscellaneous:				
Refined petroleum and its products	1,110,110	30,863,324	2,271,946	63,155,669
Vegetable oils	34,779	936,742	84,058	2,281,158
Sugar, sirup, glucose, and molasses	184,875	5,091,438	437,434	11,989,442
Boats and vessel supplies	7,973	112,908	13,004	217,082
Iron, pig and bloom	212,753	9,991,387	380,288	17,524,700
Rails and fastenings	57,769	2,378,627	114,851	4,706,467
Bar and sheet iron, structural iron, and iron pipe	683,376	22,168,863	1,399,588	45,332,983
Other metals, pig, bar, and sheet	121,750	4,328,554	266,460	9,577,562
Castings, machinery, and boilers	214,731	4,227,857	461,383	9,036,830
Cement	489,369	18,454,450	965,296	36,513,841
Brick and artificial stone	454,032	15,606,849	729,243	24,886,805
Lime and plaster	203,062	5,192,614	397,576	10,313,018
Sewer pipe and drain tile	112,462	2,090,430	198,274	3,727,588
Agricultural implements and vehicles other than automobiles	120,118	1,719,816	220,239	3,195,941
Automobiles and autotrucks*	522,290	4,159,911	1,313,895	10,665,454
Household goods and secondhand furniture	68,817	677,900	125,186	1,245,720
Furniture (new)	75,726	691,802	186,095	1,692,286
Beverages	32,606	613,454	59,022	1,123,959
Ice	202,422	5,208,853	226,406	5,893,751
Fertilizers (all kinds)	300,811	6,817,946	442,134	10,152,733
Paper, printed matter, and books	117,494	2,774,682	331,577	7,940,317
Chemicals and explosives	254,246	7,535,197	512,021	14,911,354
Textiles	74,944	878,375	168,736	2,028,615
Canned goods (all canned food products)	134,531	3,105,822	297,542	7,021,333
Other manufactures and miscellaneous	2,779,952	64,817,509	5,405,508	121,153,290
Total	8,570,998	220,445,310	17,007,762	426,287,898
GRAND TOTAL, CARLOAD TRAFFIC	29,470,970	979,932,832	55,685,233	1,788,557,231
Merchandise—All L. C. L. freight	.....	43,176,746	.....	70,927,245
GRAND TOTAL, CARLOAD AND L. C. L. TRAFFIC	.....	1,023,109,578	.....	1,859,484,476

* Includes automobiles, motor cars, autotrucks, and parts (except tires and chains); chasses, tonneaus and wheels.

WILLIAM S. WOLLNER, secretary of the Pacific Railway Club, San Francisco, has been elected president of the Society of Safety Engineers of California. Mr. Wollner is general safety fire inspection and welfare agent of the Northwestern Pacific.

L. & N. Designs Bridge to Resist Gulf Hurricanes

Adopts Hollow Cylindrical Piers as Offering Most Effective Resistance to the Severe Lateral Forces

AN UNUSUAL and exceedingly formidable problem in bridge engineering is being solved in an unusual way by the Louisville & Nashville in the renewal of the crossing of Great Rigolets, a tidal pass between Lake Borgne and Lake Pontchartrain, 31 miles from New Orleans. The bridge is located on the line between Mobile, Ala., and New Orleans, which for miles on each side of Great Rigolets passes over a salt marsh close to the coast, where it is subjected at times to the action of violent tropical storms, which have heretofore done great damage to both tracks and structures.

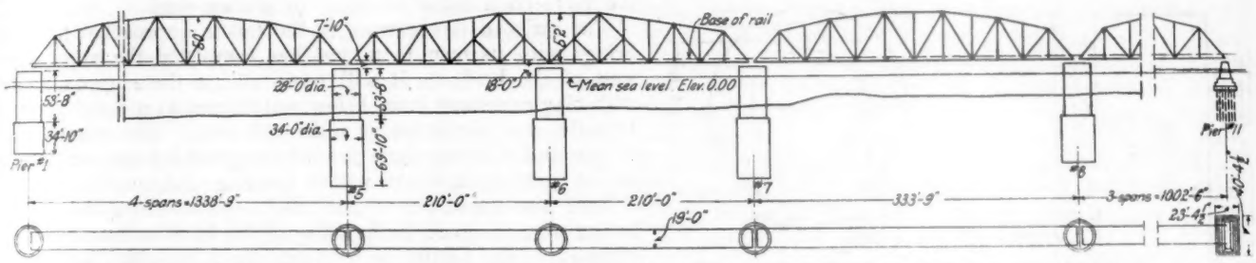
These violent tropical hurricanes originate at the eastern end of the Caribbean Sea and blow through the gulf. They have a diameter of about 250 miles with a velocity in translation of about 12 miles per hour and a velocity of rotation as high as 125 miles per hour, as determined from observations made south of New Orleans. It is the rotary velocity which does the damage and the wind may blow from any direction of the compass, depending upon the position of the storm center with respect to the structure.

True tides on the gulf are insignificant, varying only about 15 in. from mean sea level, but during the most violent storms the water has been blown up to a height of about 10 ft. above mean sea level. The maximum velocity of the current at such times has never been determined, for a man cannot stay on the bridge during the violent hurricanes, but the angle of the current with the bridge line is about 64 deg.

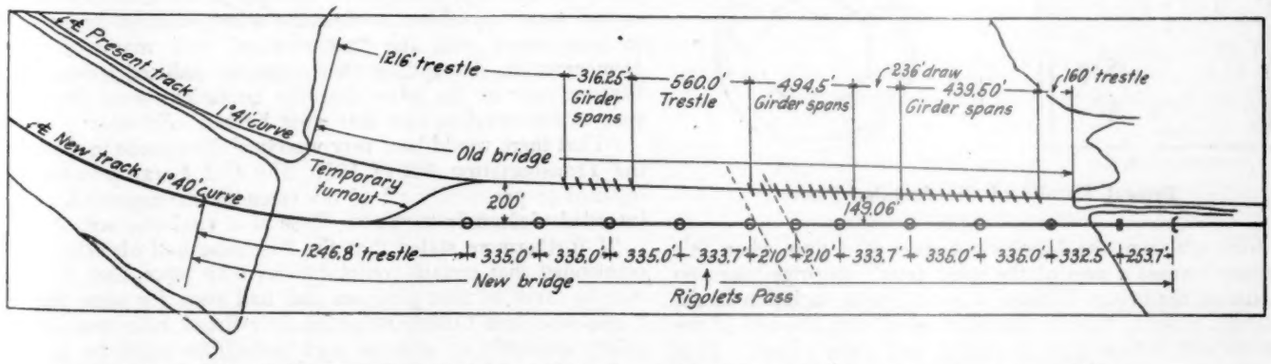
The present bridge consists of plate girder spans and a draw span of the through truss swing type, supported on creosoted timber piers. The base of rail is about 13 ft. above mean sea level, too low to keep the bridge clear of the water during the storms as the wind sometimes drives it to a height of about two feet above the bottom flanges of the deck girders in this bridge. During the storm of September 29, 1915, 16 plate girder spans of the old Rigolets bridge were destroyed by the combined action of the wind, current and waves.

Studies for the design of the new bridge resulted in a decision to provide eight through truss spans 330 ft. center to center of end bearings, and one swing type draw span 414 ft. center to center of end bearings, giving a total length, center to center of end piers, of 3,097 ft. 6 in. The elevation of base of rail at 18 ft. above mean sea level will place the lowest portion of the steel work 13 ft. 4½ in. above normal water level. The design of piers to resist the severe lateral forces to be encountered obviously presented the most difficult feature of the problem and after careful consideration it was decided to make the piers of annular form, except the one nearest to New Orleans which will be of the usual rectangular horizontal section, supported on piles. The portion of the cylindrical piers above the bottom of the waterway will be 28 ft. in diameter, while that part below the bottom will be 34 ft. in diameter. The central well will be uniformly 16 ft. in diameter. The piers will be constructed in steel shells, the annular space between the inner and outer shells being filled with reinforced concrete during the process of sinking them. The sinking will be accomplished by the dredging process, but in case any logs or other obstructions are encountered, arrangements have been made to cap the shells with a steel dome so that the pneumatic process may be resorted to if found necessary.

The steel shells will be built on docks, floated out to proper position and placed within steel sheet piling cofferdams to cut off the current and reduce the effect of scour and will then be built up in place as they are sunk. The ex-



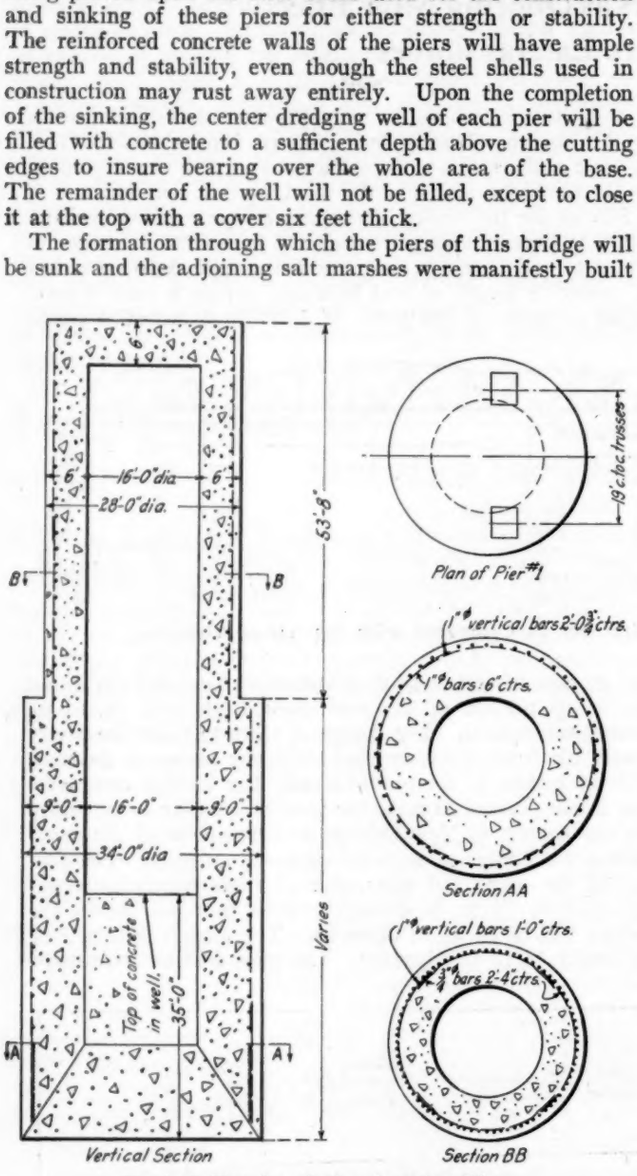
Cylindrical Piers 28 ft. in Diameter Give Increased Stability as Compared with the Usual Designs



The New Bridge Is Being Built on a New Line to Avoid Interference with the Old Structure

pectation is to sink Piers 1 to 10, inclusive, so that the cutting edges will be at a depth of from 78 to 113 ft. below mean sea level, although the depth may be varied if found necessary during the progress of the work. No reliance is being placed upon the steel shells used for the construction and sinking of these piers for either strength or stability. The reinforced concrete walls of the piers will have ample strength and stability, even though the steel shells used in construction may rust away entirely. Upon the completion of the sinking, the center dredging well of each pier will be filled with concrete to a sufficient depth above the cutting edges to insure bearing over the whole area of the base. The remainder of the well will not be filled, except to close it at the top with a cover six feet thick.

The formation through which the piers of this bridge will be sunk and the adjoining salt marshes were manifestly built



Typical Details of the Annular Piers

up with silt from the Mississippi river at a time when this territory formed a part of the river delta. Borings taken on the site of the bridge indicate a considerable variation in the material, ranging from a soft black mud near the bed of the pass to stiff yellow clay, fine sand and some gravel. It is expected, however, that each of the cylindrical piers will be founded either on stiff gray clay or hard packed sand. The maximum depth of water below mean sea level on the site of the proposed bridge is about 45 ft. while the maximum depth under the existing bridge is about 57 ft., indicating that some scour had taken place under the present structure. It is the purpose to sink the piers of the new structure to a depth that will make them stable with any reasonable amount of scour.

As it is impracticable to build a new bridge on the site of the old one while maintaining the heavy traffic over the line, a new location was selected for the proposed bridge far enough from the old structure to be clear of all wreckage from the old bridge which has been damaged several times by storms.

As the marshes over which the approaches to the bridge are located will not sustain the railroad roadbed, 7,969 ft. of timber trestle will be constructed at the east end of the bridge structure and 3,435 ft. at the west end, and the greater part of these trestles will be filled. It is expected that when the filling shall have been completed there will be more material below the marsh level than above it, so the trestles will be constructed of sufficient strength to carry trains for some years to allow ample time for the embankments to settle and provide for handling additional material from time to time as the settlement occurs.

The Missouri Valley Bridge & Iron Company of Leavenworth, Kan., has the contract for the piers and foundations on a modified cost plus fee basis and has done the preliminary work of building docks, camps and providing floating equipment, but has not yet begun actual construction of the piers on account of delay in getting steel.

The railroad is constructing the trestle approaches to the bridge with its own force and has completed the approach west of the bridge. It will begin filling these approaches with clay excavated from below water level at a point about 12 miles east of the bridge within 30 days. The country is so low and flat that there is no high ground from which to obtain suitable material within hauling distance.

Both the substructure and the superstructure for this bridge were designed in the office of W. H. Courtenay, chief engineer of the Louisville & Nashville, Louisville, Ky.

Denies Predicting Campaign for Lower Rates

WASHINGTON, D. C.

SENATOR JAMES E. WATSON, of Indiana, has written a letter to correct an impression given by a widely published newspaper statement about a month ago which had quoted him as indicating that President Harding and the Republican party proposed to enter upon a campaign for a reduction of railroad rates and would support such a policy in the next Congress. The purported interview had caused some apprehension that the administration proposed to join forces with the "progressives" and many of the Democrats in demanding that rates be reduced. Senator Watson says in the letter that the quotations were from a general conversation and that what he had said was:

"That there would be a very vigorous effort made to amend the Transportation Act of 1920, and that I was personally opposed to practically all of the amendments suggested, and intended vigorously to oppose those of a vital character.

"I furthermore stated that the President had already recommended that certain consolidations take place, and that I was in favor of that program and had been for some time. I also said that further reduction in railroad rates was altogether desirable as soon as such reductions could be made without impairing the efficiency of the railroads, and that I was satisfied that any statement made by the President as to reduction in rates always would be qualified by the statement that the rates must not be so reduced as to impair the efficiency of the transportation lines of the country or their ability to give service to the people, which after all is the main question involved.

"A number of railroad presidents wrote me, and I responded by giving the substance of the conversation, which, fortunately, one very eminent railroad lawyer heard and truly reported to the railroad presidents in question at their meeting last week in New York.

"As a member of the Committee on Interstate Commerce,

I have given very earnest consideration to all of these railroad questions, and am prepared to deal with them as little as possible in legislation, and, when pressed into action by superior numbers, to so legislate as to enable them to render the most efficient service to the people they are intended to serve."

Some of the administration leaders have been giving a good deal of attention lately to the idea that if railroad consolidations could be brought about much would be accomplished toward a "solution of the transportation problem." Senator Cummins was quoted, after a conference at the White House on Tuesday, as expressing an opinion in favor of something to bring about consolidation and it was later stated that the President "had no doubt that such a policy would be favored" by the Administration at the next session of Congress.

Unification and co-ordination of the various forms of transportation was urged by President Harding in a letter read at the annual convention to the United States Good Roads Association. "I have been increasingly impressed in recent years with the essential unity of our entire problem of transportation; that is, with the fact that all the instruments of transportation, from the country roads to the railways, the waterways to our mercantile marine establishment, require unification and co-ordination with a view to the completest systematization. I hope it may be possible, through your own organization and many others which are concerned with various phases of the transportation question, to bring about the closest possible co-operation between all the political and fiscal authorities which have to deal with the means of transportation."

Freight Car Loading

WASHINGTON, D. C.

FREIGHT CAR LOADING during the week April 7 showed a reduction of nearly 43,000 cars as compared with the preceding week, but was still far in excess of the loading for the corresponding weeks of previous years. The reduction was in part due to observance of holidays in the mines. The total revenue freight loading was 895,767, an increase of 189,754 as compared with the corresponding week of last year and an increase of 200,886 as compared with 1921. The loading of all classes of commodities except l.c.l. merchandise was greater than that for the corresponding week of either the two previous years, but there was a falling off as compared with the week before of 18,000 cars in coal, and 17,000 cars in miscellaneous freight. Coal loading, however, showed an increase of 94,983 cars as compared with the corresponding week of last year, which was the first week of the coal strike.

Fewer freight cars are now in need of repair than at any time since February 1, 1921, according to reports filed with the Car Service Division. On April 1, 1923, these reports showed, 206,312 freight cars, or 9 per cent of the cars on line were in need of repairs. This was a decrease of 6,241 compared with the number on March 15. Freight cars in need of heavy repair numbered 154,302 or 6.7 per cent. This was a decrease of 2,427 compared with the number in need of such repairs on March 15. Freight cars in need of light repairs totaled 52,010 or 2.3 per cent. This was a decrease of 3,814 within the same period.

Reports filed as of April 1, 1923, showed that the railroads of the United States had 50,107 serviceable locomotives on that date. This is the largest number the railroads have ever had, according to the records of the Car Service Division, which go back as far as August, 1920. The nearest approach to that figure was on July 1, 1922, the date on which the strike of railway shopmen began, at which time there were 50,003 serviceable locomotives.

Locomotives in need of repair on April 1 this year numbered 14,452 or 22.4 per cent of the total number on line. This was a decrease of 1,179 compared with the total on March 15. The total on April 1, was practically equivalent to that of July 1, 1922.

Of the total number, 12,801 or 19.8 per cent were in need of repairs requiring more than 24 hours. This was a decrease since March 15 of 1,129. Locomotives in need of light repairs totaled 1,651 or 2.6 per cent which was a decrease of 50 locomotives in need of that class of repairs since March 15.

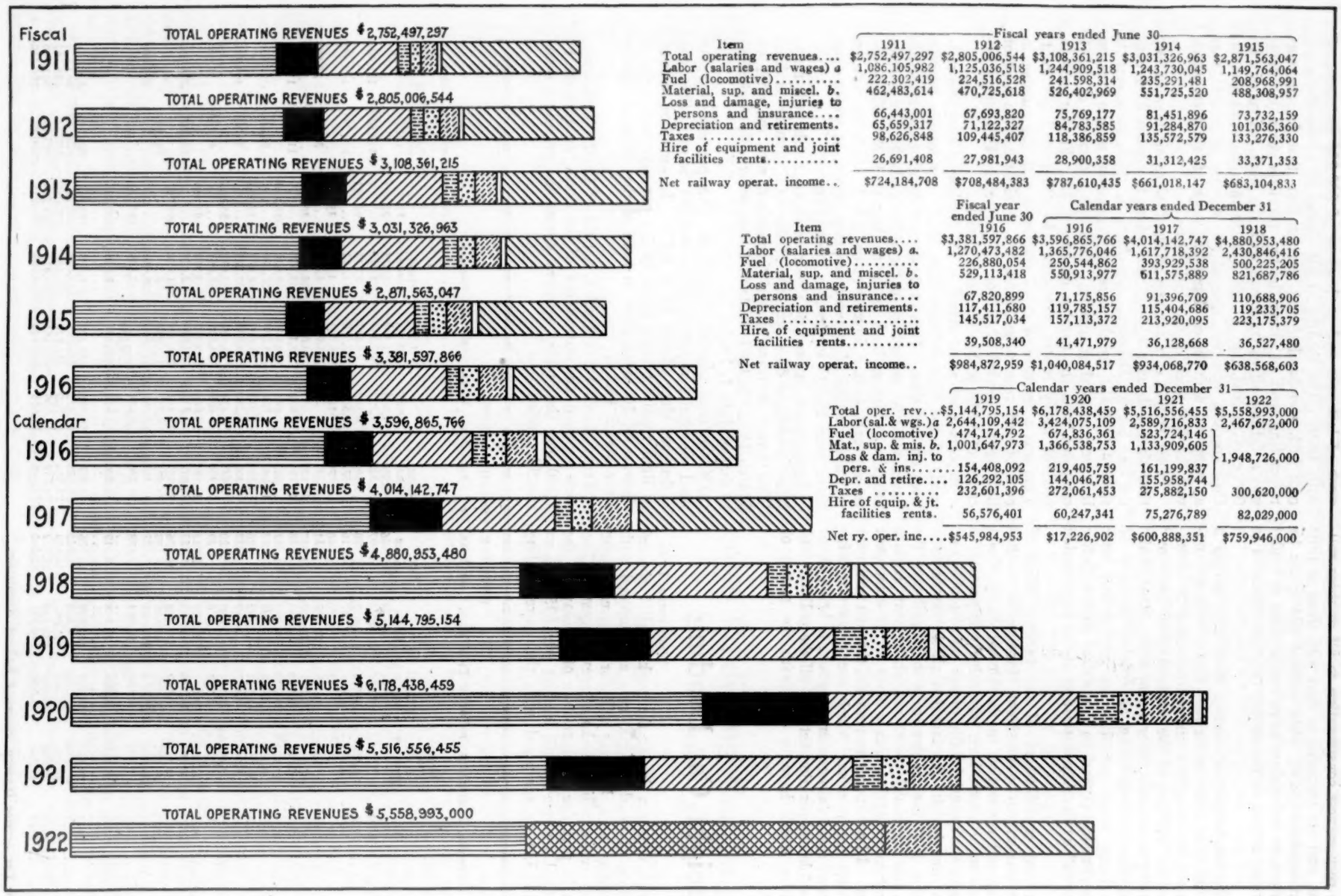
From March 15 to April 1, a total of 18,021 locomotives were repaired and turned out of the shops, an increase of 1,180 over the number repaired during the preceding semi-monthly period.

REVENUE FREIGHT LOADED

SUMMARY—ALL DISTRICTS, COMPARISON OF TOTALS THIS YEAR, LAST YEAR, TWO YEARS AGO. WEEK ENDED SATURDAY, APRIL 7, 1923

Districts	Year	Grain and grain products	Live stock	Coal	Coke	Forest products	Ore	Mdse. L.C.L.	Miscellaneous	Total revenue freight loaded	Corresponding period	
										1923	1922	1921
Eastern	1923	7,172	2,961	46,608	4,366	6,300	2,943	63.339	88,315	222,004	.....	.....
	1922	5,916	2,737	6,935	1,607	4,337	1,337	69,242	71,975	.....	164,086	171,482
Allegheny	1923	2,357	2,690	47,937	7,430	3,382	5,542	46,497	78,357	194,192	.....	.....
	1922	2,091	2,466	19,957	4,716	2,572	3,568	50,970	63,891	.....	150,231	140,645
Pocahontas	1923	193	63	21,970	580	1,770	186	6,061	4,920	35,743	.....	.....
	1922	235	76	21,387	234	1,241	29	5,992	4,447	.....	33,641	25,271
Southern	1923	3,728	2,077	21,907	1,387	23,322	1,950	39,094	46,454	139,919	.....	.....
	1922	2,889	2,120	12,143	488	18,194	690	38,134	43,570	.....	118,228	112,777
Northwestern	1923	11.725	9,633	6,005	1,767	21,843	968	29.638	33,620	115,289	.....	.....
	1922	8,339	6,939	3,395	1,182	16,642	804	29,779	27,186	.....	94,256	87,558
Central Western	1923	10,217	11,295	15,583	426	8,699	3,358	35,095	48.082	132,755	.....	.....
	1922	8,689	8,457	3,819	232	5,395	1,210	34,415	37,231	.....	99,448	101,484
Southwestern	1923	3,961	2,164	3,989	120	8,641	434	14,484	22,072	55,865	.....	.....
	1922	3,324	1,980	1,470	139	5,990	699	14,506	18,011	.....	46,113	55,664
Total Western Districts	1923	25,903	23.092	25,667	2,313	39,183	4,760	79,217	103,774	303,909	.....	.....
	1922	20,352	17,376	8,684	1,553	28,027	2,713	78,694	82,428	.....	239,827	244,706
Total all roads	1923	39,353	30,883	164,089	16,076	73,957	15,381	234,208	321,820	895,767	.....	.....
	1922	31,483	24,775	69,106	8,598	54,371	8,337	243.032	266,311	.....	706,013	.....
	1921	33,432	25,475	126,441	7,057	47,461	4,769	213,782	236,464	.....	.....	694,881
Increase compared	1922	7,870	6,108	94,983	7,478	19,586	7,044	.....	55,509	189,754	.....	.....
Decrease compared	1922	.....	.....	.....	.....	.....	.....	8,824	.....	.....	.....	.....
Increase compared	1921	5,921	5,408	37,648	9,019	26,496	10,612	20,426	85,356	200,886	.....	.....
Decrease compared	1921	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
April 7	1923	39,353	30,883	164,089	16,076	73,957	15,381	234,208	321,820	895,767	706,013	694,881
March 31	1923	41,842	31,726	182,668	15,740	76.124	15,435	235,695	339,495	938,725	821,808	663,171
March 24	1923	39.383	30.349	185,062	14,839	73,384	14,700	232,639	326,680	917,036	837,241	686,567
March 17	1923	39,788	30,633	183.530	15,322	74,152	12,786	229,161	319,414	904,286	815,082	691,396
March 10	1923	41,532	31,039	186,327	15,240	75,548	11,818	229,146	314,569	905.219	820,886	700,440

Compiled by the Car Service Division, American Railway Association.



Item	Fiscal years ended June 30 1911	1912	1913	1914	1915
Total operating revenues....	$2,752,497,297	$2,805,006,544	$3,108,361,215	$3,031,326,963	$2,871,563,047
Labor (salaries and wages) *a*	1,086,105,982	1,125,036,518	1,244,909,518	1,243,730,045	1,149,764,064
Fuel (locomotive).....	222,302,419	224,516,528	241,598,314	235,291,481	208,968,991
Material, sup. and miscel. *b*.	462,483,614	470,725,618	526,402,969	551,725,520	488,308,957
Loss and damage, injuries to persons and insurance....	66,443,001	67,693,820	75,769,177	81,451,896	73,732,159
Depreciation and retirements.	65,659,317	71,122,327	84,783,585	91,284,870	101,036,360
Taxes	98,626,848	109,445,407	118,386,859	135,572,579	133,276,330
Hire of equipment and joint facilities rents.....	26,691,408	27,981,943	28,900,358	31,312,425	33,371,353
Net railway operat. income..	$724,184,708	$708,484,383	$787,610,435	$661,018,147	$683,104,833

Item	Fiscal year ended June 30 1916	Calendar years ended December 31 1916	1917	1918
Total operating revenues....	$3,381,597,866	$3,596,865,766	$4,014,142,747	$4,880,953,480
Labor (salaries and wages) *a*.	1,270,473,482	1,365,776,046	1,617,718,392	2,430,846,416
Fuel (locomotive).....	226,880,054	250,544,862	393,929,538	500,225,205
Material, sup. and miscel. *b*.	529,113,418	550,913,977	611,575,889	821,687,786
Loss and damage, injuries to persons and insurance....	67,820,899	71,175,856	91,396,709	110,688,906
Depreciation and retirements.	117,411,680	119,785,157	115,404,686	119,233,705
Taxes	145,517,034	157,113,372	213,920,095	223,175,379
Hire of equipment and joint facilities rents.....	39,508,340	41,471,979	36,128,668	36,527,480
Net railway operat. income..	$984,872,959	$1,040,084,517	$934,068,770	$638,568,603

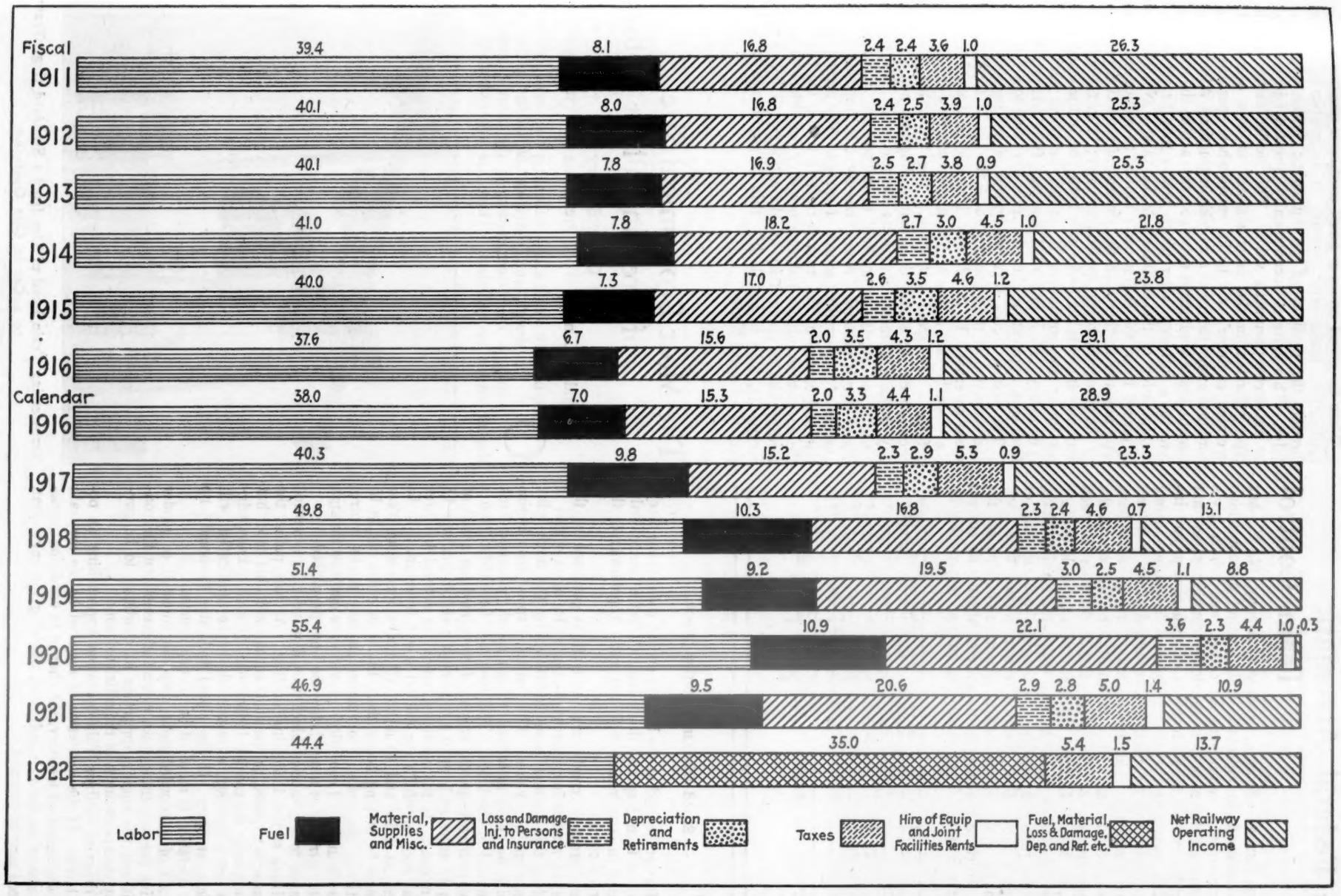
	Calendar years ended December 31 1919	1920	1921	1922
Total oper. rev...	$5,144,795,154	$6,178,438,459	$5,516,556,455	$5,558,993,000
Labor (sal.& wgs.)*a*	2,644,109,442	3,424,075,109	2,589,716,833	2,467,672,000
Fuel (locomotive)	474,174,792	674,836,361	523,724,146	
Mat., sup. & mis. *b*.	1,001,647,973	1,366,538,753	1,133,909,605	
Loss & dam. inj. to pers. & ins.....	154,408,092	219,405,759	161,199,837	1,948,726,000
Depr. and retire....	126,292,105	144,046,781	155,958,744	
Taxes	232,601,396	272,061,453	275,882,150	300,620,000
Hire of equip. & jt. facilities rents.	56,576,401	60,247,341	75,276,789	82,029,000
Net ry. oper. inc....	$545,984,953	$17,226,902	$600,888,351	$759,946,000

The Distribution of Railway Operating Revenues—Class I Roads, 1911 to 1922

a Labor expenditures do not include that portion of payroll chargeable to *capital account*. Amount of employees compensation chargeable to operating expenses for 1921, compiled by Interstate Commerce Commission and shown in their Preliminary Abstract for 1921. For years 1911 to 1920, inclusive, partially estimated by Bureau of Railway Economics from data submitted before I. C. C.—Dekct 13,293—Respondent's exhibits Nos. 47, 58 and 59. *b* Includes uncollectible railway revenues.

Note: Data for the years 1918, 1919 and 1920, represent the combined results of the federal and corporate operations of the Class I roads under federal control, also data for Class I roads not under federal control, but do not take into account the general administrative expenses of the United States Railroad Administration. Switching and terminal companies are excluded from statement throughout.

Figures compiled by Bureau of Railway Economics.



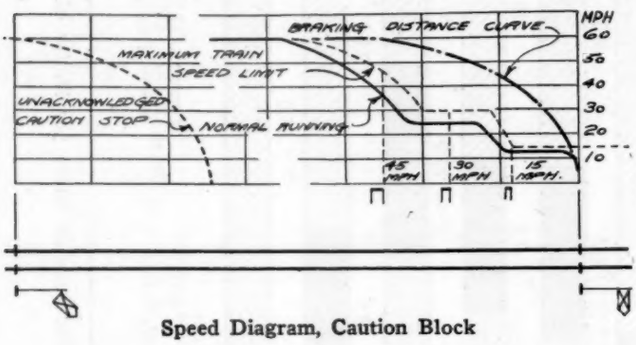
The Distribution of Railway Operating Revenues Expressed in Cents per Dollar of Gross Revenues

Switching and terminal companies are excluded from statement throughout.

The Federal Automatic Train Control

THE FEDERAL SIGNAL COMPANY, Albany, N. Y., has developed an automatic train control system which provides a continuous indication, and which gives immediate indication of less restrictive conditions, so that the engineman may take advantage of such change and increase his speed; and a change in track condition to one more restrictive will be instantly transmitted to the train and effect an automatic brake application. Arrangements have been completed to make an experimental installation on the Saratoga division of the Delaware & Hudson between Albany, N. Y. and Colonie, about five miles, double track.

Assuming a train in block *A B*, called the caution black, and to be protected against a preceding train moving or standing in block *B C*, control is transmitted from track to train by means of inductive apparatus, carried on the engine, which responds to the presence of alternating current in the track rails. This alternating current is provided by



Speed Diagram, Caution Block

a transformer, located at the leaving end of the caution block, and may be from a special line circuit for train control only, or be used in combination with the track transformer of the usual track circuit.

Under "proceed" conditions, the train is governed by the presence of alternating current in the rails, upon which it is running, this current being controlled by the track relay of the section in advance. The restricted speed zone begins at a point breaking distance, at high speed, measured back from the end of the block. The zone may be divided into a series of restricted speeds, varying from a medium speed of perhaps 45 miles an hour to a minimum speed of perhaps 15 miles an hour. If the restricted zones are defined by three points at each of which the critical speed is assumed to be 45 miles, 30 miles and 15 miles, all trains traversing these zones must be moving below these limits in order not to be automatically stopped. The engineman may retain control of his train under all conditions provided he operates through "caution" territory at a rate below the limit prescribed.

Entrance to the caution block would usually be governed by a visual signal indicating caution. At this point, the engineman is required to operate a contactor in his cab; that is, acknowledge the caution indication. If such acknowledgment is not performed, an automatic brake application will take place at once. If the signal indicates "proceed" no manual operation is required of the engineman.

The act of acknowledgment does not forestall or render ineffective the automatic train control elements; on the contrary, it sets the engine apparatus in condition to be governed by the speed limits of the restricted zone.

The diagram outlines train operation approaching an occupied block. If the restriction is removed before the train reaches the restricted territory, the change in condition immediately shows on the cab indicator, advising the engineman that speed may be resumed.

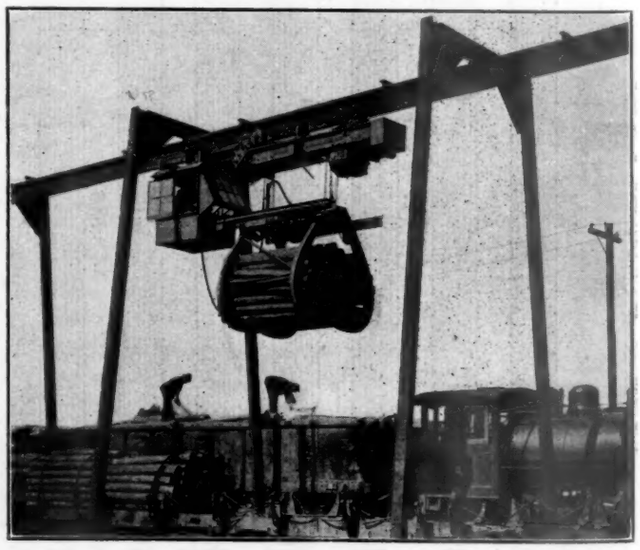
When the speed limits or block conditions demand a brake application, brake pipe pressure is automatically reduced through the medium of an automatic brake application valve. This valve is pneumatically operated and controlled by an electro-pneumatic valve. This device makes a train pipe reduction in the same manner as does a manually operated engineer's air brake valve when operated in accordance under the usual air brake instructions. After the automatic brake application valve goes into action, the train must come to a full stop, after which brakes may be released by manipulation of the engineer's brake valve. No limitation is placed upon the engineman's ability to reduce the brake pipe pressure further than the amount of reduction provided by the automatic brake application valve; in fact, the engineman may increase the brake pipe reduction in the usual manner under any conditions, if, in his judgment such action is necessary. He is prevented, however, from taking a release from such application until the train has come to a full stop.

The system forces acknowledgment of the caution signal and reduction of train speed without the use of a centrifugal speed governor. If, in addition, it should be desired to limit the speed beyond a stop signal, a governor may be added to enforce a low speed restriction. The apparatus does not encroach on the standard clearance diagram, nor are there any wayside elements that form obstructions. The control circuits and apparatus are said to embody the fundamental closed circuit principle; restrictions must be imposed by the absence of a controlling source of energy. The actual operation and control of the train is entirely within the hands of the engineman, unless sudden emergency conditions arise affording him no opportunity to take action; or if he, through incapacity, fails to handle his train in accordance with the prescribed speed limits.

The Most Economical Size of Treating Plant Retort

By Grant Shipley
President Century Wood Preserving Co., Pittsburgh

ONE OF THE PROBLEMS confronting engineers interested in the design and operation of timber preserving plants is the determination of the most economical size of retorts or cylinders. There are approximately 250



Transferring Train Load of Ties from a Standard Gage Tram to a Car in One Operation

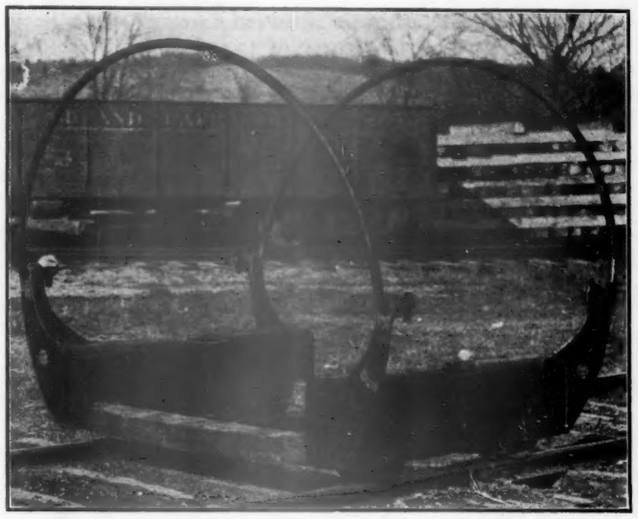
retorts in service in pressure treating plants in the United States and Canada, ranging from 72 in. to 114 in. in diameter. The approximate percentage of cylinders of the various diameters is as follows:

72 in.	35.63 per cent	90 in.	3.24 per cent
84 in.	26.72 per cent	88 in.	1.62 per cent
74 in.	17.40 per cent	75 in.	1.62 per cent
78 in.	6.47 per cent	108 in.	1.23 per cent
73 in.	5.66 per cent	114 in.	.41 per cent
		Total	100.00 per cent

All retorts up to 90 in. in diameter are provided with narrow gage tracks of from 24 in. to 36 in. diameter on which the trams and trucks carrying the timber and piling are transported to and from the treating cylinders, while all retorts of 90 in. in diameter or over are provided with tracks of standard gage, 4 ft. 8½ in.

About 12 years ago, I came to the conclusion that those plants in which cylinders were of sufficiently large diameter to permit the use of standard gage tracks were following the best practice for the reason that a narrow gage track layout through the tie storage yard demanded independent or three rail tracks which were complicated to design, expensive to construct and difficult to maintain as compared with standard gage tracks. Furthermore, narrow gage tram and bolster cars for the handling of cross ties and timber are more difficult to build than standard gage cars and they are usually of such light construction that their maintenance costs are high.

In view of these conditions, I attempted about 11 years ago to design a cylinder of the smallest diameter which would take a standard gage track and found this diameter to be 90 in. Experience has since led me to recommend this or 96 in. diameter. With its construction we were able to eliminate narrow gage track construction entirely and built solid cast steel tram cars with wheels of ample size, equipped with roller bearings, which construction has worked out very satisfactorily. One of the illustrations shows a car of this construction which has been in use for over 10 years, while other illustrations show a special electrically driven monorail crane with electrically operated tongs for use in connection with these cast steel tram cars. It is of note that the Southern

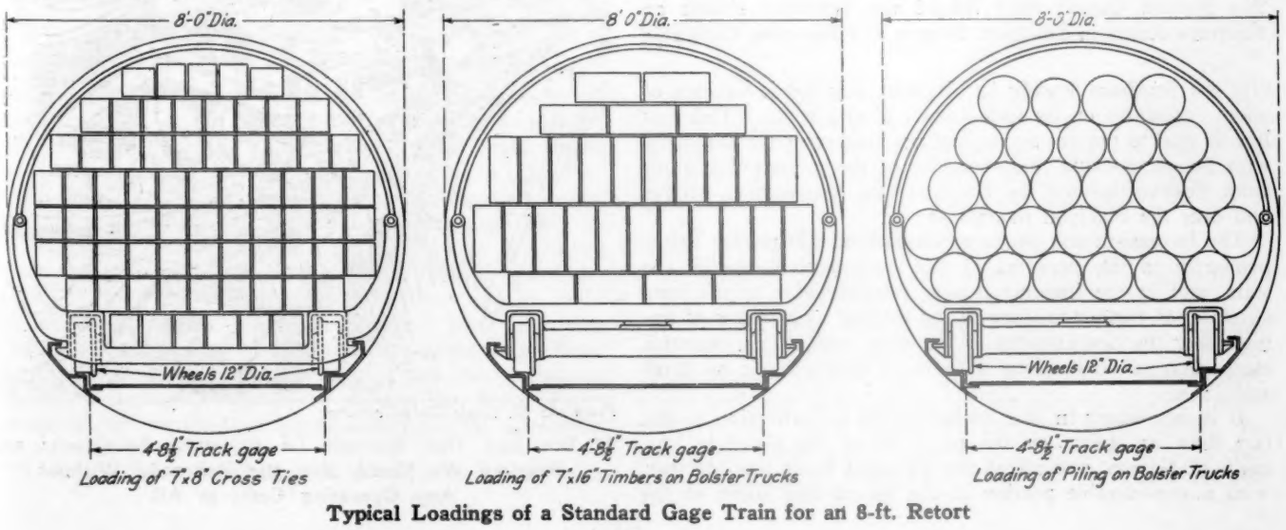


A Standard Gage Train of Rugged Construction

Pacific has recently adopted this design of tram car for use in its new West Oakland, Cal., tie plant which is now under construction. Other illustrations show the end of a treating cylinder with a tram car loaded in various manners.

COMPARATIVE CAPACITIES OF TREATING CYLINDERS

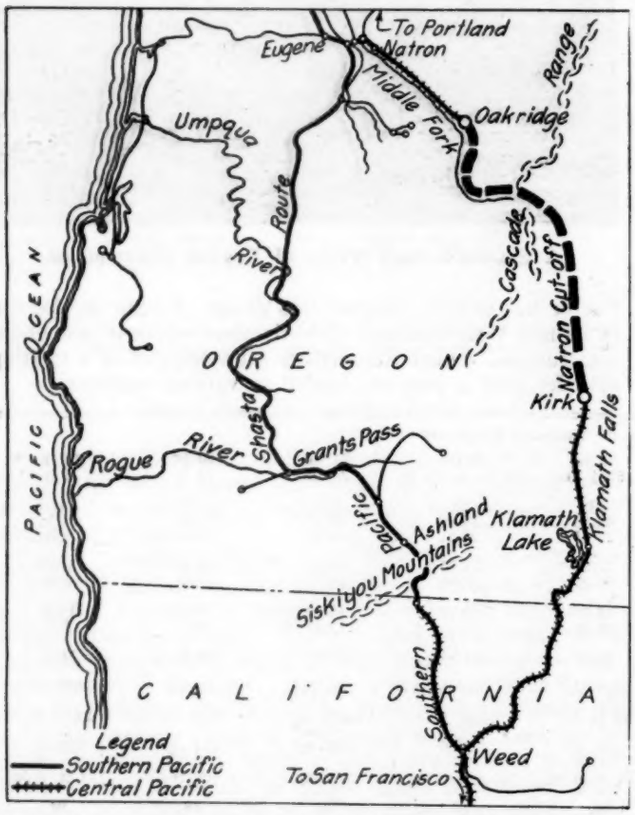
Diameter of treating cylinder	108 in.	96 in.	90 in.	84 in.	74 in.	60 in.	48 in.
Gage of track in cylinder	56½ in.	56½ in.	56½ in.	30 in. or 36 in.	24 in.	24 in.	18 in.
Number of 7 in. by 8 in. sawn ties loaded on each tram	94	71	60	53	38	21	11
Cylinder area in square feet	63.62	50.26	44.18	38.48	29.17	19.60	12.56
Area taken up by cross ties in square feet	36.55	27.60	23.33	20.61	14.77	8.16	4.28
Per cent of cylinder area taken up by cross ties	57.45	54.92	52.80	53.55	50.65	41.66	34.05
Area taken up by lumber in square feet	32.66	23.33	20.22	18.66	13.22	7.78	3.89
Per cent of cylinder area taken up by lumber	51.34	46.42	45.77	48.50	45.32	39.67	30.95
Area taken up by piling in square feet	29.85	22.77	18.85	17.28	13.35	7.07	3.92
Per cent of cylinder area taken up by piling	46.91	45.31	42.67	44.90	45.77	36.06	31.26
Weight of cylinder shell per lineal feet for 200 lb. W. P.	1,200 lb.	940 lb.	810 lb.	700 lb.	560 lb.	380 lb.	280 lb.
Weight of cylinder shell per lineal feet per cross tie	12.76 lb.	13.15 lb.	13.47 lb.	13.07 lb.	14.74 lb.	17.9 lb.	24.64 lb.
Length of cylinder for each 1,000 cross ties 8 ft. long	88 ft.	112 ft.	136 ft.	152 ft.	208 ft.	384 ft.	728 ft.
Length of cylinder for each 1,000 cross ties 8 ft. 6 in. long	93 ft. 6 in.	119 ft.	144 ft. 6 in.	161 ft. 6 in.	221 ft.	408 ft.	773 ft. 6 in.
Number of tram cars required for each 1,000 cross ties	11	14	17	19	26	48	91



Typical Loadings of a Standard Gage Train for an 8-ft. Retort

Southern Pacific Asks Authority to Build Natron Cut-off

THE FILING of an application by the Southern Pacific for a certificate for public convenience and necessity for a line from Oakridge, Ore., to Kirk, gives definite assurance of the railroad's intention to carry out a project which has long been a source of speculative interest to the people of Oregon. This 118-mile line comprises the connecting link in what has been known as the Natron cut-off. Oakridge is the present terminus of a branch leading southeast up the middle fork of the Williamette river from Eugene, Ore., on the main line of the Southern Pacific's San Francisco-Portland route. Kirk is at the north end of the Klamath Falls line which extends northward from Weed, Cal. Thus the closing of the gap between the two will



The Natron Cut-off Will Afford the Southern Pacific an Alternate Route in Southern Oregon and Northern California

give the Southern Pacific an alternate line for a distance of about 300-miles on its well known Shasta route. The new line is said to possess scenic features that compare favorably with the picturesque characteristics of the present line south from Eugene through the Umpqua and Rogue river valleys and over the Siskiyou mountains.

The interest to the people of Oregon in this project arises primarily in the prospect of new railway mileage in the state, and in the impetus it may possibly give to the construction of further mileage in the interior as a means of encouraging the development of the state, and to the eventual completion of connections with the Union Pacific at Bend and Crane.

It is interesting in this connection to call attention to the fact that, as shown on the map, all of the Oakdale line south of Natron, and all of the Klamath Falls line together with a considerable portion of the Shasta line south of the Oregon-California state line comprise portions of the Central Pacific. Consequently the Natron cut-off project played an important part in the hearings before the Interstate Commerce Commission with respect to the Southern Pacific-Central Pacific separation case. It will be recalled that the Oregon Public Service Commission petitioned the Interstate Commerce Commission to incorporate, in its settlement, a provision that the proposed cut-off should be available for joint use by competing lines. This, however, was not done.

This project involves heavy construction, and is estimated to cost from 10 to 12½ million dollars. The most difficult part of the work will be encountered in the west approach to the summit of the Cascade range at the head waters of middle fork. For this reason the first work probably will be the construction of the line northward from Kirk up the east approach to the summit in order that the heavier work may be prosecuted from both sides.

The construction of this line, however, is not contingent alone on favorable action by the Interstate Commerce Commission. In a statement issued by William Sproule, president of the Southern Pacific, attention is called to the fact that the beginning of the construction will have to await confirmation of the Southern Pacific's title to the Central Pacific by the United States Court. Application to the Interstate Commerce Commission for authority to build the line is being made at this time in order that there may be no delay following favorable action of the court.

THE NORTHERN PACIFIC, in nine years, has reduced by nearly 60 per cent the number of accidents to employees. Fatal accidents among employees for each year from 1917 to 1922, inclusive, were 55, 53, 32, 16, 17 and 18, respectively.

From the St. Louis Globe-Democrat

If We Just Had Enough La Follettes, Brookharts and Fraziers We Could Run the Railroads Without Any Operating Costs at All

A Plan for Stabilizing Coal Movement

Car Assignment on Basis of Contracts Will Reduce Peak Load and Lower Production Costs

By C. M. Fox
Editor, Black Diamond Magazine

THE LARGEST CUSTOMER of America's soft coal mines is the railroad; the largest item of expense of the railroads is coal; the heaviest freight shipper is the coal industry; the moving of the entire five or six hundred million tons of coal which the nation needs each year is the problem of the railroads; the winter coal demand brings onto the railroads their most acute traffic congestion; without coal the railroads could not function; without the railroads the coal industry could not function. These statements are indisputable. They demonstrate the fact that the two industries, coal production and transportation, are so closely interwoven as to defy divorce. The problem of the one is the problem of the other. A successful solution of the coal problem will be a boon, equally, to the railroads.

Such being the case, no one is more keenly concerned in what is happening and what is going to happen to coal than the railroads. Almost every conceivable angle of the railroad business is greatly influenced either by the price, the volume, or some other characteristic of the coal supply. From the supply end, continuity of supply is necessary for the maintenance of continuous operation and a reasonable price is needful to the earning of proper dividends. From an operating viewpoint, if the burden of hauling coal could be spread out over ten months instead of being concentrated in seven, the matter would be much simplified.

To the railroad executive, from the reasons set forth above, the following statement, which is absolutely true, is startling. This statement is made by one who knows but little of railroading but much about coal. The nation's coal supply is in imminent danger! Not from stoppage, nor lack of ample supply, but from ill-conceived, poorly considered or maliciously inspired legislation. Industrial, commercial and governmental America must, therefore, in urgent self-defense, formulate and advocate some plan which will solve the coal problem of the country without killing or hopelessly injuring industrial America in the solution. The plan must take into consideration existing property rights and must not be discriminatory in its operation, as, if it fails in either case it will be nullified by the Supreme Court. Such a plan and its contemplated effect is here presented for consideration and debate.

An Extension of the Assigned Car Rule

Briefly stated, it contemplates the extension of the "assigned car rule" to all industry and provides for a 60-day contract-making period. To explain: Sixty days, from March 1 to April 31, are set aside each year, to be known as the official contract-making period. During this period all industry is expected to approach the coal trade, and the coal trade to approach all industry, with a view to placing the coal requirements of the nation for the coming year under contract. Upon the execution of contracts they are to be registered with a "car allocation bureau," whereupon this bureau will assign suitable coal hauling equipment to direct an exclusive service between the mines and the contracting industry in sufficient volume to deliver the entire year's tonnage of the contract in approximately equal allotments over a period of ten months.

There is nothing mandatory in the proposed plan. No coal producer is forced to do anything. If he prefers to take his chances with free cars and the open market he is at liberty to do so. Any manufacturer or coal consumer who considers it advisable not to make a contract may continue, as in the past, to buy coal as, when and where he likes, if he can get the cars. Thus it is not discriminatory in that all are free to avail themselves of its privileges if they so elect.

A careful consideration of its workings is illuminating. First we will consider it from the standpoint of national supply and general average cost. Three major faults are today universally acknowledged in the coal industry. First, there is an over-production capacity of 40 per cent or more on which the nation must pay overhead and carrying charges. Second, the industry is overmanned to the point where 200,000 or more miners are maintained in idleness every day in the year. For the living of these men and their families the nation must pay through the medium of higher prices for fuel. Third, in the coal trade a contract is not always a contract: This for the reason that either buyer or seller may "welch" his contract with impunity, so far as actual practice goes.

The present production capacity of the bituminous coal mines of America is around one billion tons per year. America's consumption capacity has never yet reached 600,000,000 tons; therefore we have an over-capacity of production, or over-development, of some 40 per cent. From this is deduced the fact that the 60 per cent of production capacity which produces coal the most cheaply is capable of fueling the nation. Since the production cost of bituminous coal, to a discussion of which this article is confined, ranges in various operations from below $1.75 to a figure above $3.50 in others, it will be seen what the elimination of the 40 per cent of high cost operations would mean on our national coal bill. This plan would eliminate the high cost mines.

During the 60-day contract period all mines would go out after tonnage contracts in sufficient volume to guarantee the assignment of enough cars to them during the 10 months delivery period to assure their being able to operate 4½ or 5 days a week. To make sure of getting contracts, producers would be inclined to "sharpen their pencils" and make the lowest prices possible in consonance with sound business principles. The result would be, at the end of the 60-day contract period, the 60 per cent of low-cost operations would be signed up for their entire tonnage, which is enough to supply the nation, and the 40 per cent of high cost properties, having no contracts, would be out of business.

Part-Time Operations and High Cost

An additional element enters into this price proposition. It is a known fact that "part time" operations have much to do with high costs. For example, a certain company operates nine mines located in the radius of a two mile circle. In the approximate center of this circle is a central power plant which generates and supplies to these nine mines their power requirements. In a certain six months' period during the past winter when every mine was raising every pound of coal it could get out of the ground, there was never one minute

when all nine mines were working. Neither was there one minute when they were all idle. As a result, the power station had to operate continuously with a readiness-to-serve power supply available at all times. The cost of power plant operation which, economically, should have been charged against the entire possible output of all nine mines was thus by force of circumstance charged against that coal which was actually produced, or about 30 per cent of capacity. The power cost on this coal was therefore three times what it should have been. Continuous operation would, by the elimination of such circumstances, reduce the cost of coal. The same principle applies to all the various overhead charges which enter into the operation of coal mines and which must ultimately be borne by the consumer of coal.

We have today some 700,000 coal miners who work, on the average, about 60 per cent of the time. Conservatively speaking, if 500,000 were permitted to work full time for 10 months, they would produce our entire requirement with a comfortable margin to spare. In effect, the present condition compels the coal industry to support in idleness, as has been stated before, practically 200,000 coal miners and their dependents. If 40 per cent of the bituminous mines in America were permanently closed down the miners who are dependent on them for support would be forced to enter other lines of industrial endeavor, where they are needed, and the coal industry would be relieved of that incubus. The miners of the remaining 60 per cent of operations, being able to work full time, would be so situated economically as to be able to consider a wage cut if it became necessary—something they are justifiably loath to do now when they are forced to work only half time.

The effect of this plan on the railroad industry and other heavy buyers of coal may be considered to be this: Laying aside cost, for the moment, they will be enabled to contract an entire year's supply of coal of a known grade, in guaranteed certain supply and at a fixed price for the year. True they would have to provide a 60-day storage capacity but the consumer that can not already do that is only partially equipped. This item of fixed prices for coal for the year means a fixed fuel cost and permits a greater accuracy in estimating budget requirements than has ever before been possible. The assigned cars and the newly established sanctity of contracts would assure a steady supply. Added to that is the cost feature; the continuous operation secured by the producer would insure a lower price. Thus, the coal consumer would seem to be a definite gainer by such a plan.

Will It Work?

The objections which have been advanced have been few and seem to be fallacious. The one most frequently expressed is "it won't work." That is not an objection, but is rather an opinion, and one man's opinion is as good as another's. Many careful thinkers think it will work. It is certain that if the railroads can deliver 80 per cent of our tonnage in 5 months, as they do now, they will be able to handle 100 per cent of it in 10 months, as is contemplated under the plan. Some say it would be unjust in that it would put the high cost mines out of business against their will. There is surely no injustice since in that as in any other industry only the fittest (the most economical) survive. Any condition which compels the American people to consume and pay for coal which costs $3.50 a ton when an exactly similar fuel can be produced for $2 is an economic crime, and such is the condition today. The law which requires the railroads to distribute their cars to high and low-cost mines alike, in proportion to their ability to produce coal, keeps the production of the low-cost mines down so low that the country is forced to buy enormous quantities of the high priced fuel.

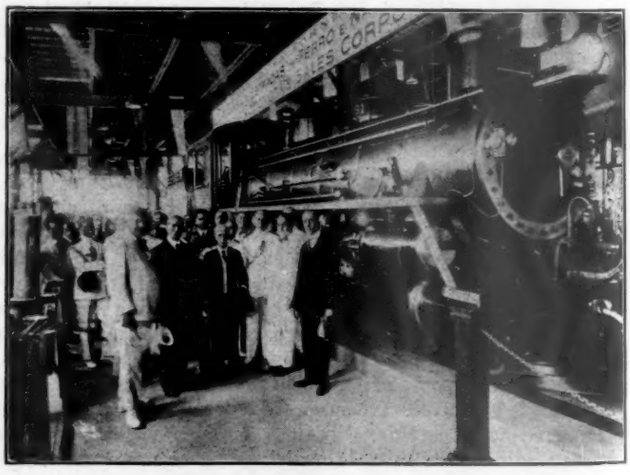
Some say the buyers would not contract. When offered coal at a reasonable figure they would be inclined to sign up. Given an added incentive of guaranteed supply they would be more so. After consideration of the fact that the non-contract buyer would be at the mercy of the open market for both price and cars, which would mean high prices and probably no cars in time of stress, this inclination would just about be transformed into determination. As to the charge that it is discriminatory, it is not. Any one who chose to avail himself of its provisions could do so. It would, in effect, remove the present discriminatory practices of the assigned car rule in railroad service and the preferential service.

As to contracts. In recent years a spirit has grown up in the coal trade to the effect that contracts are made only to be broken. This was given rise by the abrogation of agreements by the government during the close of the war period and has grown to a point where buyers have no hesitancy about reducing the amount of their contract purchases or even cancelling outright. Producers, likewise, find means to evade contract obligations if it is deemed advisable. This condition must stop. A contract in coal, as in sugar, wheat or money, must bind both parties and until it does, the economics and prosperity of all commercial America are threatened. The establishment of contract sanctity in the coal trade will be welcomed as a boon to the nation.

Advantages of the Indiana Plan

To sum up, this plan which is known as the Indiana plan, would seem to (1) reduce America's over-production; (2) reduce the over-manning of the industry; (3) eliminate the high-cost mine; (4) insure the miner steady work; (5) reduce the cost of coal production; (6) insure the coal consumer a certain supply of coal of a known grade; (7) stabilize prices and thereby permit a fixed fuel cost; (8) equalize the railroads' seasonal loads; (9) insure adequate reserve stocks at the approach of winter; and (10) insure the sanctity of contracts.

The railroads, particularly, should view it with favor as it not only stabilizes their fuel cost but distributes their traffic load. Many plans have been proposed but we have yet to see another which fails to lay the entire blame for the past trouble on either the coal producer, the union, or the railroad. This plan does neither. Ignoring prejudice and guesswork, it apparently goes to the heart of the physical problem and attempts to solve it, "with malice toward none and charity for all."



President of Brazil Inspects American Built Locomotive

This photograph was taken at the Brazilian Centennial Exposition during the visit of the president of the republic to the American Pavilion. In the front row at the left is Col. Collier, American commissioner to the exposition. Next to Colonel Collier, in dark clothing, is Dr. Arthur Bernardes, President of Brazil. The locomotive shown at the right was built by the American Locomotive Company for the Mogyana Railway.

Automatic Telephone Expedites Communication

Conversational, Fire Alarm, and Watchman's Service Combined in One System for Railroad Shops

ONE OF THE RECENT improvements at the large locomotive shops of the Chicago, Rock Island & Pacific at Silvis, Ill., is an automatic telephone system which replaced a manually operated switchboard and stations. The old manual system was in need of extensive overhauling and repairs while at the same time authority had been granted for a complete watchman and fire alarm telegraph system. A happy combination was effected by installing a private automatic exchange telephone system that answered the requirements of telephone communication and also of a fire alarm and watchman's reporting system at the cost of the repairs to the old telephone system plus the cost of the separate fire alarm and watchman system.

The Automatic Telephone on the Foreman's Desk Puts Him Only Three Seconds from a Hurry-Up Call Twenty-Four Hours a Day

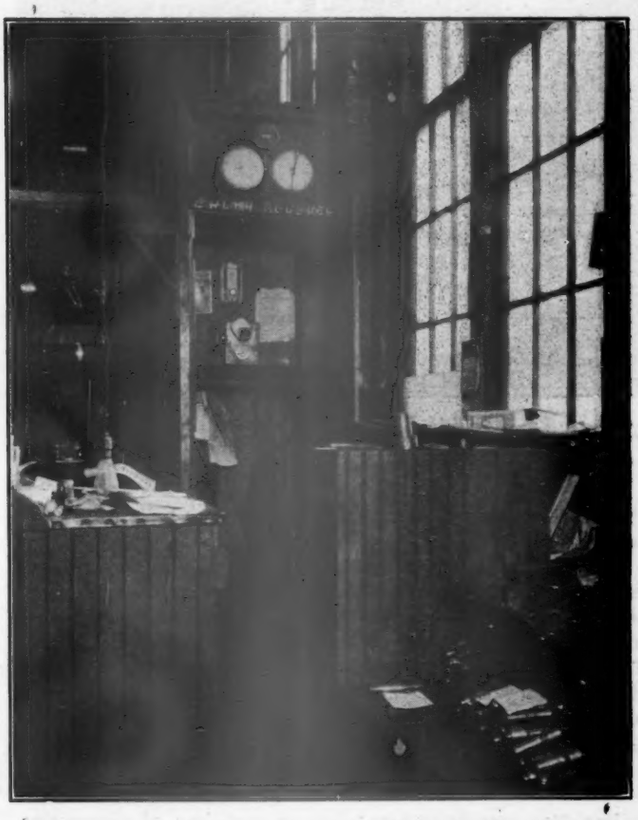
The old manual switchboard, which was installed in 1905, was of the common battery, cord and plug type, with a capacity for 200 lines terminating for switching. An operator was on duty from 8 a. m. to 5 p. m. with a lunch period from 12 to 1 o'clock. As this board was located in the storeroom none of the employees were on duty nearby at other times, therefore the hours of service were limited to those when the operator was on duty.

The new switchboard was installed on a balcony in the corner of the generating room of the power house. With the addition of a new run of cable from the storeroom to the power house the existing line circuits were simply cut over to the new automatic system. The telephones in the offices of the various foremen and supervisory officers, together with the phones in booths in the shop, were all replaced by automatic telephone sets equipped with dials mounted on the telephones.

Considered simply as a telephone communication system the automatic system which was installed possesses several distinct advantages over the old manual switchboard, which it replaced. With the automatic system connection can be made between any two telephones in the shops in three seconds or less, at any time of the day or night; if the line is busy this information is given at once. As the average length of time required to complete a call on the manually operated board was approximately 22 seconds, if a man made 30 calls each working day, this saving of 18 seconds a call would mean a saving of one week's working time for him in a year. Further, the automatic system eliminated the wages of the telephone switchboard operators for the manual system who received $85 per month.

Fire Alarm and Watchman's Service Combined in the System

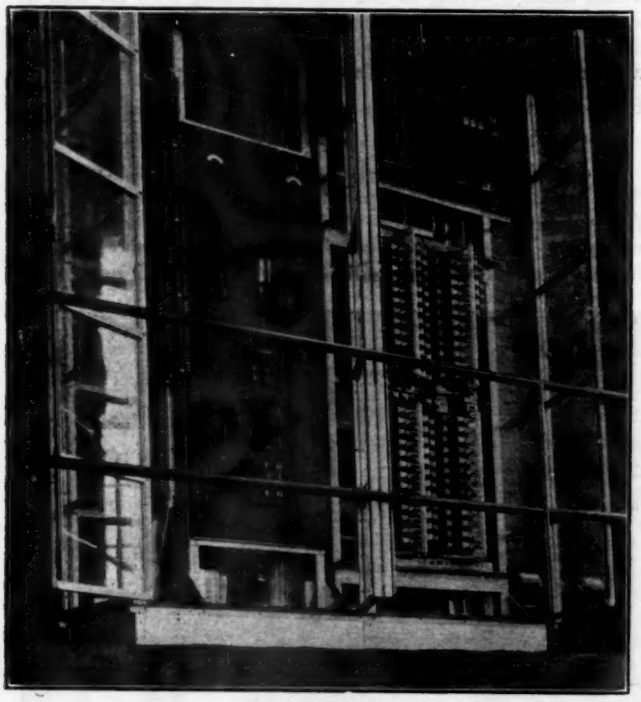
The same telephones that are used for ordinary conversations are used also for reporting fires or other emergencies. When Number 99, which is reserved for fires, is dialed at any telephone, connection is made to a special phone in the engine room at the power house and a special loud gong in the power house is sounded, so that those on duty may know that it is a fire call. In answering the phone the engineer determines from the man sending the call just where the fire is located, and gets some idea of the extent and danger existing. He then proceeds to blow a simple coded whistle that gives the general alarm to all employees of the shops. The code of the whistle gives the general location of the fire and the employees in each area, who have been organized and instructed in fire drill, proceed at once to the fire. As the telephone is used constantly every one knows



The Phones in the Shop Are Placed in Booths with Loud Ringing Gongs Mounted Outside

the exact location of the nearest phone, whereas with the ordinary fire alarm telegraph system the use of the fire call box is so infrequent that its exact location is often forgotten in an emergency.

In addition to the other services rendered this automatic telephone system is also used at night as a watchman's recording system. When making his rounds the watchman, on arrival at each telephone, dials off his number which automatically operates an indicator and recording device in the engineer's office at the power house. If the watchman finds anything wrong he can telephone to the engineer while if the engineer desires to call any watchman he can call him to the phone as soon as the watchman dials his recording number.



The Automatic Switchboard Is Located on a Balcony in the Power House

This combination telephone, fire alarm, watchman's reporting system is maintained by the electrical department shop force, a man being detailed for 20 minutes each morning to test the operation of the switching gear of the board. The 48-volt storage battery for the operation of the system is charged automatically. The automatic switchboard and telephones were furnished by the Automatic Electric Company, Chicago.

THE MISSOURI LEGISLATURE has adopted four of twenty-nine railroad bills which were presented to it. One of the four requires railroads to furnish shippers of live stock with cars within 96 hours after written application; the penalty $15 per day per car, with a heavy fine for failure to comply with a second request. Applicants must deposit $15 for each car, which will be applied on the freight charges, and which, if a car is not accepted within 72 hours after it is placed, will be forfeited. Another bill requires platforms and steel underframes on all cabooses where pushing locomotives are used. Another permits one stop in transit between point of origin and destination on shipments of live stock, grain, grain products, feed and salt. The fourth bill provides that all trains shall be equipped with first-aid packages.

Secretary Hoover Urges Co-operation With Railways

WASHINGTON, D. C.

SECRETARY HOOVER has joined in the campaign to conserve transportation facilities, in order to enable the handling of a record-breaking traffic this year, by addressing the following letter on the subject of co-operation between shippers and the railways with respect to efficient use of railway facilities to national and state trade associations of the United States:

"Due to the war and the long continued impossibility on the part of the railways to finance the necessary betterments, both our production capacity and consuming demands have now advanced beyond our transportation facilities. The railway managers under the recent improved conditions are making great effort in finance and expansion of facilities to meet our necessities, but full recovery of lost ground must be slow and, if we are to maintain our present rate of productivity and employment, it is vital that there be co-operation with the railway management from both producing and consuming industries to secure the most efficient operation of the railroads.

"The railways have asked for this co-operation, and the trades can make a tremendous contribution to the orderly march of our prosperity if they will undertake it seriously and in an organized fashion.

"The principal directions in which such co-operation can be extended by the trades are:

1. The advance storage of their winter coal during the light consuming season—that is, from now until September 1, including the early movement of Lake traffic.

2. The loading of all cars to full capacity, their prompt loading and discharge.

3. Reduction of reconsignment shipments and restriction of to-order bills of lading.

4. Demands for no more cars from the railways than can be promptly used.

"If we could secure the maximum efficiency in these directions we will have added more effective commodity movement than would be brought about by the addition of approximately 300,000 cars and 3,000 locomotives, and the addition of at least 10 per cent to our track mileage and terminal facilities.

"The importance of this lies in more than simply the maintenance of continuity of production and full supply of consumption, because any strangulation in movement of commodities through car shortages affects the profits of every individual manufacturer by interruption in his production, and furthermore, such strangulation affects price levels in the most definite fashion.

"The full and smooth movement of all of the productivity of the country would be the greatest contribution that could be made at the present time in checking inflation or increase in price levels.

"Therefore, I earnestly hope that you will undertake to definitely organize your association, to bring about this co-operation through your district or trade, and to establish co-operative contact with the various railway executives concerned.

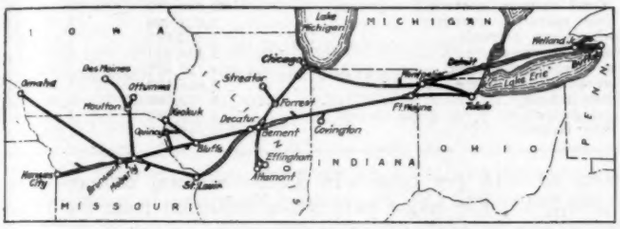
"If we could secure unity of action on these questions between the shippers and the railways we would have made a greater contribution to continued prosperity and full employment than any direction I know of.

"I would be glad to know your views as to organization that can be effected to this end in order that the department may act as a clearing house of helpful dissemination of ideas in the matter."

Wabash Annual Report for 1922 Disappointing

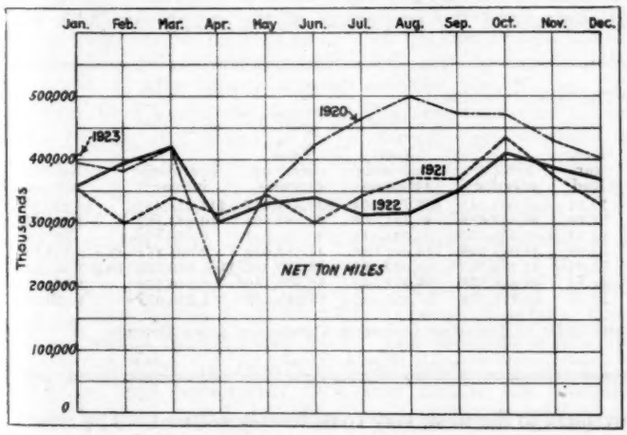
Traffic Much Below Normal; Strikes Cut Revenues $2,700,000 and Rate Reductions, $2,725,000

THE WABASH EARNED in 1922 a net railway operating income of $4,107,421. While it is true that this figure was $244,080 more than the net in 1921 and better by some $8,000,000 than the net operating deficit suffered in 1920, it would, nevertheless, be a great stretch of the imagination to say that the property experienced in 1922 a satisfactory year. The Wabash standard return for operations during federal control was about $5,800,000 which, it will be noted, the 1922 net operating income failed to equal by $1,700,000. It is by this much at least that the Wabash



The Wabash

fell behind its pre-war earnings basis. The redeeming feature in the situation is, of course, the expectation that the road should be able to do much better in 1923 than it did in 1922. It will undoubtedly be able to realize on the more normal conditions of railway operation and the improved general business situation, which we expect to see continued well into, if not throughout the year. It is not so likely, however, that the degree of improvement over 1922 will be exactly spectacular. The Wabash can hardly be said to have



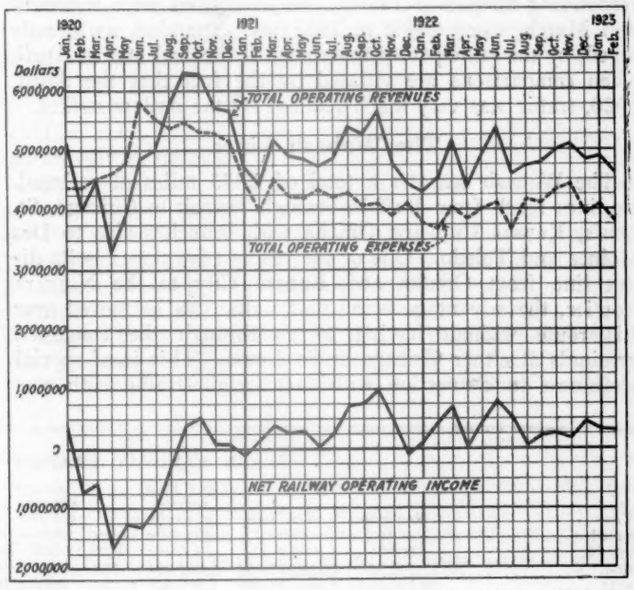
Traffic on the Wabash

an entirely adequate physical plant and may be handicapped to some extent when it comes to handling a heavy traffic with greatest economy.

Revenues Cut $2,700,000 by Strikes

The year 1922 was not a typical year for any railroad. The three factors that kept it from being typical were the coal strike, the shopmen's strike and the cuts in rates. Of course, every road was affected in some degree by one or the other of these factors. The Wabash was one of those which was affected in considerable degree by all three. The coal strike affected it somewhat more than might have been expected from the fact that only about 25 or 30 per cent of its total tonnage is coal—bituminous and anthracite. The effect of the shopmen's strike, one doubts not, must have been accentuated by the difficulties experienced by carriers connecting at the Niagara frontier which, as a result of strike conditions, had their troubles in moving their traffic long into the latter months of the year. At any rate, President Taussig in his annual report estimates that revenues for the year was reduced by the two strikes to the extent of $2,700,000. As concerns the rate reduction, he estimates a loss in revenues of $1,225,000 for the year as a result of the various reductions in rates on agricultural products. He estimates an additional loss in revenues also of $1,500,000 for the last six months of the year, as a result of the 10 per cent general reduction in rates effective July 1.

An outstanding factor in the Wabash situation in 1922



Revenues and Expenses

was that its traffic failed to reflect in a satisfactory manner the revival of business which took place in the latter part of the year. The Wabash serves the Detroit district which, for the past several months, has been exceptionally prosperous. The prosperity of the automobile industry, however, does not seem to have been reflected in the earnings of the Wabash in as great degree as might properly be expected. Whether the road should reflect the same expansion of traffic and earnings as has been shown in recent months and equally in recent years by the Pere Marquette or the Michigan Central might perhaps be a question. The fact is, of course, that it has not. The reason, no doubt, is that the other two lines have been put in a much better earnings position by the improved prosperity of the state of Michigan generally. These two lines have probably gained more from the improved industrial position of the state as a result of the introduction there of the automobile industry than they have from the automobile traffic alone. The Wabash carries a large volume of automobile business. It, however, has not had in like de-

gree the advantage of serving the Michigan industrial district.

Traffic Below Normal

Of course, 1922 had special conditions of its own as a result of the coal and shopmen's strikes. Taking the year as a whole, the effect on the Wabash was a total revenue tonnage, 7.2 per cent greater than in 1921. The increase in revenue tons one mile, however, was only 1.1 per cent, and as concerns freight revenue, there was an actual decrease of 3.8 per cent. Total revenues were decreased 2.6 per cent. The important feature in connection with the increase of only 1.1 per cent in revenue ton-miles rests on the fact that 1921 was one of the poorest years from the standpoint of traffic volume in the Wabash's recent history. It would have been expected that under the improved business conditions of 1922, a better result might have been shown. A brief analysis of the monthly net ton-miles figures is of interest in this connection. The figures show that the best month in 1922 was March, when the road was moving coal in anticipation of the coal strike. The March figure was in excess of that for October, otherwise the best month of the year. In only six months of the year did the net ton-miles exceed the corresponding figures for 1921 and then, except for February and March, only by a narrow margin. The comparison with 1920 is even more indicative. Throughout most of the year, the 1922 figures were very much below those for the corresponding months of 1920. The exceptions were February and March, when traffic in 1922 was expanded, as already noted, by the anticipatory movement of the coal and in April, when comparisons are vitiated by the fact that the April, 1920, traffic was very much reduced by the outlaw strikes.

The Wabash Lines

The Wabash operates a total of 2,473 miles of railroad. Its lines reach from Buffalo through Detroit to Chicago, St. Louis, Kansas City and Omaha with branches also to Des Moines and Toledo. One of the road's advantages is its direct line from Omaha and Kansas City to the Niagara frontier, the advantage being that traffic can be moved over this route without having to go through the congested terminals at either Chicago or St. Louis. This is of special usefulness in connection with fast freight traffic both east and west. The Wabash is particularly in a preferred position as concerns perishables moving through the Kansas City gateway and packing house products which originate at Kansas City or Omaha. From the Niagara frontier to Detroit, the Wabash uses the Grand Trunk under trackage rights for a distance of 288 miles. It also uses trackage rights at various other points, its total mileage so operated totaling 430 miles. This makes the Wabash one of those roads in which the unit of net railway operating income tells a much more complete story than the figure of operating income or net after taxes alone. In 1922, the road had a debit charge for joint facility rents amounting to $1,677,026. In this connection, it is also worth pointing out that it had a debit balance for hire of freight cars amounting to $1,673,894, an increase, incidentally, of $374,489 over 1921. The heavy debit per diem balance might well be taken to indicate that the Wabash needs more cars and needs them badly.

Coal Tonnage Cut

The Wabash traffic is diversified. In 1922, its revenue tonnage was divided as follows: Products of agriculture, 19.69 per cent; products of animals, 5.38 per cent; products of mines, 34.06 per cent; products of forests, 6.11 per cent, and manufactures and miscellaneous, 29.85 per cent. The total revenue tonnage in 1922 was 15,629,501, as compared with 14,581,966 in 1921, an increase, as has been previously noted, of 7.18 per cent. In 1920 the total tonnage was 16,845,541. The larger part of the reduction from the 1920 figures was in coal, instancing thus the effect of the coal strike. The Wabash secures a large share of its bituminous coal from the coal area in Illinois between St. Louis and Decatur. Its anthracite it receives from the anthracite carriers at the Niagara frontier. The bituminous tonnage in 1922 totaled 3,348,005, or 21.43 per cent of the total revenue tonnage. This compared with 3,369,218 tons moved during 1921, when demands for fuel were kept down by the industrial depression, but it compared with 4,800,010 tons in 1920, the bituminous tonnage in that year constituting 28.49 per cent of the total revenue tonnage. The anthracite tonnage in 1922 was considerably less than half that of 1921, this being the result of the fact that the volume of anthracite mined was cut down, and the proportion of the supply available for movement to the west, very considerably reduced. The actual figure in 1922 was only 185,129 tons as compared with 498,950 tons in 1921, or 450,581 tons in 1920. One of the principal reasons for introducing these facts is the expectation that the 1923 coal tonnage should be restored to more normal levels, in which case it is to be expected that there will be a corresponding improvement in the Wabash net income for the year.

The Wabash freight revenues in 1922 totaled $43,911,074, a decrease of $1,777,453 from the 1921 total. Total revenues were $57,662,496 as compared with $59,217,692, a decrease of $1,555,195. As against this decrease of $1,555,195, or 2.6 per cent in operating revenues, there was a decrease of $2,464,872 or 5.13 per cent in operating expenses, the 1922

INCOME STATEMENT

	1922	1921
Freight revenue	$43,911,074	$45,688,528
Passenger revenue	9,087,894	9,931,246
Total railway operating revenues	57,662,496	59,217,692
Maintenance of way and structures	8,270,927	9,210,291
Maintenance of equipment	12,282,949	11,843,729
Traffic	1,378,262	1,341,678
Transportation	24,086,905	25,726,606
General	1,775,867	2,028,804
Total railway operating expenses	48,041,297	50,506,169
Net operating revenue	9,621,199	8,711,523
Railway tax accruals	2,262,675	1,860,487
Operating income	7,334,653	6,846,804
Net operating income	4,107,421	3,863,340
Non-operating income	1,165,159	1,483,564
Gross income	5,272,580	5,346,904
Total deductions from gross income	4,062,192	4,065,543
Net income	1,210,388	1,281,361

WABASH RAILWAY TRAFFIC STATISTICS, 1916-1922

Year ended Dec. 31	Revenue tons carried	Rev. tons carried one mile	Rev. tons carried one mile per mile of road	Aver. haul	Rev. per ton per mile—cents	Rev. train load	Rev. car load	Freight revenue	Total operating revenues	Total operating expenses	Operating income	Net after charges
1916	17,236,884	4,440,861,488	1,762,904	258	0.62	517	19.81	$27,609,741	$37,721,104	$24,874,417	$11,671,449	$5,390,908
1917	18,156,259	4,785,374,795	1,899,667	264	0.61	568	21.79	29,342,855	40,471,999	28,468,896	10,543,882	4,227,105
1918	17,105,880	4,615,816,639	1,836,841	270	0.75	606	24.40	34,498,242	48,246,411	40,223,947	6,685,998	487,699
1919	14,686,194	4,027,016,200	1,626,723	274	0.88	627	22.56	35,255,548	48,847,086	44,587,030	2,805,154	Def. 2,548,951
1920	16,845,541	4,566,144,218	1,846,429	271	0.95	639	23.44	43,324,700	59,982,232	58,859,395	Def. 454,940	Def. 7,369,827
1921	14,581,966	3,888,948,771	1,572,588	267	1.17	589	21.51	45,688,528	59,217,692	50,506,169*	6,846,804	1,281,361
1922	15,629,501	3,930,796,969	1,589,511	252	1.12	601	20.73	43,911,074	57,662,496	48,041,297	7,334,653	1,210,388

*Includes unaudited guaranty period items aggregating $509,018 in accordance with order of Interstate Commerce Commission dated December 15, 1921, Finance Docket No. 1606.

figure being $48,041,297 as compared with $50,506,169 in 1921. In 1922 the road operated at a ratio of 83.31 per cent as compared with 85.2 per cent in 1921. The larger part of the decrease in total operating expenses was in transportation, that account showing a reduction of $1,639,700, due primarily to decreases in wage costs; it happens, however, that there was an increase of $635,593 in the cost of locomotive fuel, due to an increase in the average price per ton of coal from $3.24 in 1921 to $3.70 in 1922, caused by conditions resulting from the coal strike. There was a reduction also of $939,364, or 10 per cent, in maintenance of way, but an increase of $439,219 in maintenance of equipment. The ratio of maintenance of way expenses to total operating revenues shows a reduction from 15.55 per cent in 1921 to 14.34 per cent in 1922, but as it happens, there was more maintenance work done. There were laid 12,033 tons of new 90-lb. rail as compared with 10,788 tons in 1921, and the ties put in track in 1922 totaled 1,259,675 as compared with 1,112,843 in 1921. The number of miles of track reballasted in 1922 totaled 165 as compared with 178 in 1921.

The increase in maintenance of equipment expenses was due principally to the strike. President Taussig says that the non-productive expenses incurred as a result of the shopmen's strike amounted to $971,492. The road also included in retirement charges $283,023 to cover coal cars written off. But for these expenses, there would have been a decrease in maintenance of equipment expenses of $815,000 as against the increase which actually took place of $439,000. President Taussig estimates that the reduction of wages effective July 1, saved the company during the last six months of 1922, approximately $330,000. The Wabash at the present time seems to have a very fair maintenance of equipment situation. Its bad order cars on March 15 totaled 3.6 per cent of the cars on line. Its per cent of locomotives held for repairs requiring over 24 hours was 20.4. This figure, while about at the average of the country, shows very pointedly the effect of the shopmen's strike because on July 1, 1922, when the shopmen's strike began, the road had its unserviceable locomotives reduced to 9.3 per cent with 48 serviceable locomotives stored.

The Wabash serves a very competitive territory. It succeeds, however, in holding its own in the competition insofar as its service is concerned, as is indicated by the fact that it is able to offer fourth morning delivery from Kansas City to New York eastbound, under normal conditions on perishable freight, and is one of the preferred carriers insofar as concerns this business. The Wabash's principal difficulty, however, is that its capacity is somewhat limited and it has not been able to effect those capital improvements which would enable it to handle a larger volume of traffic or to handle its present traffic with greatest economy. This situation is indicated in one respect by its large debit per diem car balance which unquestionably, and as has been noted above, means that it lacks cars. The situation might also be indicated by the relatively small amount of charges to additions and betterments each year and to the relatively small increase over a period of years in the investment account. In 1922, additions and betterments for road and equipment totaled only $1,487,087, of which well over half was for equipment.

THE ST. LOUIS SOUTHWESTERN has issued a 20-page booklet on the relation between the work of the engineer and malaria. This book has been published for general distribution in schools of engineering in the United States and was prepared by the Committee on Sanitary Engineering of the National Malaria Committee. The major facts in malaria control are presented in an interesting way with numerous illustrations showing the manner of controlling its ravages and reducing the economic losses resulting from it on the railways and elsewhere.

The Denver Veri-Check System

THE SYSTEM IN USE at the station of the Denver & Rio Grande Western, at Denver, Colo., for loading freight from the freight house into the 65 cars which are placed for loading each day, is so successful that the percentage of error for 1922 was only 79 per million; that is to say, the work of the loaders was 99.9921 per cent perfect. Commenting on the article in the *Railway Age* of December 2 last, in which was described the freight loading system in use on the Erie Railroad, a correspondent sends us the following account of the operation of the Denver plan. It is in the shape of a letter from the freight agent, W. A. Knerr, addressed to an officer of the road, and is in substance as follows:

For several years we have used the "drop truck" system, under which the receiving clerk calls the block number to the caller, and the caller chalks the block number on one of the packages, on the truck, and calls the block number back to the receiving clerk. With the "Denver Veri-Check" system we use cards of various colors, shapes and marks. A heavy card is furnished for each run, or block number, with the run or block number printed in heavy boldfaced type which can be easily read at a distance. This card has a hole one-half inch in diameter punched through one end of it, so it can be easily and quickly hung on a hook in the car. This hole should be punched at least a half inch from the edge of the card at the end. We still use the drop truck system, but this method of loading will work under any system.

Carding System

The cards are of various shapes, marks and colors and numbered as follows:

House Track 1, Red cards of different shapes or marks, numbered 101 to 113, inclusive.

House Track 2, White cards of different shapes or marks, numbered 201 to 213, inclusive.

House Track 3, Blue cards, 301 to 313.

House Track 4, Yellow cards, 401 to 413.

House Track 5, Green cards, 501 to 513. The first figure in the number indicates the track on which the car is standing, and the other two figures indicate the block number of the car.

The cards are made of heavy, durable cardboard, will stand rough usage and will last a long time. Our house tracks hold 13 cars each, a total setting of 65 cars, and each check clerk is supplied with a card case with 65 pockets, each pocket numbered; and the various cards are kept in pockets corresponding with block numbers printed on the cards.

Preparing Trucks for Movement

A shipment is unloaded from wagon direct to warehouse truck. The caller wheels the truck on scale and calls destination to the receiving clerk; the receiving clerk hands a card for proper run or block number to the caller, who calls the number back to the receiving clerk to make sure that he has the right card. The card is then fastened to the truck handle, and the first trucker who shows up wheels it to the door of the car under the block number as shown by the card. He then drops the truck load at or near the car door, and picks up an empty truck or two and proceeds to the nearest point where loaded trucks are waiting to be moved. He leaves his empties at that point.

Checking Into Cars

A hook with a sample card permanently attached to it is placed in each car near the door, where it can be readily seen. This is for the guidance of the stower in matching up cards removed from the trucks. The stower picks up the truck load just outside of his car, wheels it into the car, and then

removes the card and puts it on the hook. If he is in the wrong car, *he discovers his error immediately, because of the difference in color, mark or shape of the card.* This is almost automatic, and is so effective that in the two years' operation we have only had 13 cases in which wrong cards were found on hooks, 11 cases in 1921, and two cases in 1922. During the last hours of the afternoon when we are called upon to handle about 60 per cent of our outbound tonnage, we are often compelled to press truckers into service to assist stowers in order to get cars loaded in time to avoid working overtime or to make trains; but the scheme appears to be as effective with truckers as with stowers.

Responsibility

The stowers are instructed *not to allow truckers* to go into their cars and unload trucks, except under the supervision of the stower. Each stower is furnished an alphabetical list of stations that load in his car, and he is held responsible if he loads shipments that do not belong in the car.

Each stower signs a blank, Form 3868, certifying to the fact that he has loaded all the shipments in this particular car. This form he must tack to the side of the car on the inside near the door, addressed to agent at break bulk point, and in case of a peddler car, he will tack up a sufficient number of copies to cover the freight for each station; and it is the duty of the agent or conductor at break bulk or unloading point to remove his form, and make his record as called for by the form, as briefly as possible. He then mails it immediately to the agent at loading point. This form is checked for by the loading agent and its prompt receipt enables him to make a thorough investigation within a few days after the car moves whenever any exceptions are noted, and men can be promptly disciplined when necessary. We consider this form of the utmost importance in connection with placing responsibility quickly when all facts are fresh in the memory of all concerned. The O. S. & D. report is too slow, because so much detail is required, while Form 3868 is made quickly with a few brief notes, and has the advantage of being made by the man who actually handles the freight. With the information given on this form, all facts are worked up and are ready for use as soon as we receive an O. S. & D. report, or a claim. Its use also has a tendency to prompt the employees unloading shipments to be more careful in checking freight.

Loading Inspector

We have a loading inspector, whose duty it is to watch the hooks and see that wrong cards do not get on the hooks; and he sees that the cards get back to the cases to be used again. He is also watching the proper stowing of freight. He keeps a check on the prompt return of Form 3868, and when it is delayed, he calls on the agent at break bulk point to return it, at the same time reporting such cases to me.

Results

The following figures speak for themselves:

Year	Total number of packages handled	Number of packages loaded out of line
1921	1,458,488	376
1922	1,532,265	121
Total	2,990,753	497

This shows that one package in about 6,000 was loaded out of line. It will be agreed that any system which will bring about 99.98 per cent loading into the right car, is worthy of attention.

These errors are chargeable to employees as follows:

Year	Receiving clerks	Stowers and truckers	Unlocated	Total
1921	125	205	46	376
1922	5	99	17	121
Total	130	304	63	497

Our unlocated "shorts" have been reduced to a minimum.

Advantages

My two years' experience with this loading system has impressed me with the following advantages in its favor:

Economy.—The only increase in force necessary is the loading inspector, which increases the cost a little over one cent per ton. It should be understood, however, that at most of the larger freight stations a loading inspector already is employed, and in such case there should be no extra expense, because we can handle the work without trouble. The cards can be used over and over, and will last a year or two if carefully handled, provided a good quality of heavy cardboard is used. The work is not slowed up during the rush hours of the afternoon, as is the case with loading systems which require the making of cards with various details for each truck load. This work consumes considerable time, and unless there is an ample force will result in a breaking down of the system; or if a sufficient force is used to handle promptly during the rush hours of the afternoon, there will be an increase in cost, because of not been able to use all of the force during the morning hours.

Efficiency.—The foregoing figures demonstrate that there must be decided merit in the system. The average for the year 1922, is higher than the figure above stated. It is 99.9921 per cent. There is no slowing up of the work to make detailed record of each truck load, and under this system, I should say, trucks are made ready for movement at least in one-half to one-third the time. This is a very decided advantage. Traffic representatives are soliciting business on promise of 100 per cent prompt delivery at competitive points. It has relieved the telegraph department of a considerable amount of telegraphing, which was necessary under the old system in trying to locate shipments loaded out of line.

Simplicity. Its operation is so simple, that it is hard to convince the average person that such decided results are obtained through such a simple device. There is only one additional move to make as compared with the old system, when we chalked the block number on one of the packages on the truck, and that move is made by the stower in removing the card from the truck handle, and placing it on the hook, when he takes the truck into the car for the purpose of unloading it.

The "Denver Veri-Check" has shown in a surprising manner, that a great many shorts and overs are caused by the mishandling of shipping tickets or waybills, as for instance, wrong pouching, wrong car number shown on waybill, receiving clerk showing wrong block number on shipping ticket, failure or delay in making split tickets to cover part of shipment that must be diverted to and loaded in refrigerator, oil or acid cars, losing shipping tickets or waybills in warehouse or office, and holding waybills to get a record of exceptions noted when shipments are transferred; but these conditions do not affect the efficiency of the loading under the "Denver Veri-Check" and the same conditions prevail under the "Affirmative" loading system.

THE CAR PAINTING SHOP of the Canadian Pacific at Vancouver, B. C., was completely destroyed by fire on the night of April 10. Six pullman cars and adjoining freight sheds were also damaged, the total loss being estimated at about $250,000.

PULLMAN IN THE MOVIES.—A motion picture has been made by the Pullman Company comparing traveling in 1859 and in 1923. The film shows the first Pullman car with passengers wearing costumes of pre-Civil War times and illustrates in part the construction of sleeping car. The picture is designed to inform people regarding the methods employed by the Pullman Company and to illustrate the safety and comfort of travel today; and will be shown throughout the country.

General News Department

Transportation Brotherhoods to Open Bank In Pittsburgh Early in May

Members of the transportation brotherhoods in the Pittsburgh district will open a bank in Pittsburgh about May 1 to be known as the Brotherhood Savings & Trust Company. The company will operate under a state charter and will have a capital of $125,000 and a paid-up surplus of $12,500.

Appointments to Labor Board

The terms of three members of the Railroad Labor Board, R. M. Barton, Horace Baker and Albert Phillips, expired on April 15 and President Harding had expected to reappoint them or appoint their successors on April 14, according to an announcement from the White House. However, action was delayed and on Tuesday it was stated that the appointments would be made in a day or two.

Illinois Senators Want Rock Island to Take Over C. P. & St. L.

A committee of senators from the state legislature of Illinois has presented an official plea to J. E. Gorman, president of the Chicago, Rock Island & Pacific, requesting that the Rock Island take over the Chicago, Peoria & St. Louis and operate it as a part of its system. The petition urges that passenger service on the Chicago, Peoria & St. Louis be abandoned so that freight traffic may be handled profitably.

Electric Locomotive Mileage

A number of the 41 electric passenger locomotives which have been in service on the New York, New Haven & Hartford for the past 16 years have now been run more than 1,000,000 miles. Through an error in an editorial under the title of "Estimates and Facts," which appeared in the March 24, 1923 issue of the *Railway Age*, an announcement was made which credited this performance to the Pennsylvania. The record is one of which any railroad may be justly proud and credit for the performance belongs to the New Haven.

Meeting of Transportation Division, A. R. A.

The Transportation Division of the American Railway Association will hold a meeting at the Blackstone Hotel at Chicago on April 25. The list of speakers will include E. H. Pearson, president of the New York, New Haven & Hartford; R. H. Aishton, president of the American Railway Association; M. J. Gormley, chairman, Car Service Division, American Railway Association; and W. H. Bartel, director of the Division of Service of the Interstate Commerce Commission.

Mr. Hendley's Method

On "claim prevention" our readers are, no doubt, well informed; and damage prevention also is coming to be well understood; but the Southern Railway Bulletin tells of a third process, claim reversal, which merits attention. "Claim reversal" means a course of treatment by which a liability becomes an asset. This bit of information came out in connection with the handling of a freight damage claim by A. E. Hendley, agent of the Southern at Spartanburg, S. C.

Two electric library lamps were received with the glass shades broken, and the consignee presented a claim for $14.52. Mr. Hendley refused consignee's offer of $4 as salvage for the lamps, but paid the entire amount of claim and took the lamps back. He then removed the broken sections in one lamp, replaced them with the whole sections from the other lamp, and sold the one good lamp for $10. The other lamp with the broken sections was then sold for $8. Thus, enough money was realized to defray the amount of claim with a balance of $3.48 to report as freight sales.

O. R. C. and B. of R. T. Renew Agreement

The Order of Railway Conductors and the Brotherhood of Railroad Trainmen have reached an agreement covering any disputes which may arise between them in matters of jurisdiction and assuring for two years the existing co-operation of the two organizations in dealing with matters of mutual interest. The enginemen's and firemen's unions have already entered into a similar agreement with each other.

Officers of St. Louis Railway Club

The St. Louis Railway Club at its annual meeting on April 13, elected Edward Clemens, assistant to the general manager of the Terminal Railroad Association as president, and K. B. Hannigan, assistant freight traffic manager of the Southern Railway, R. C. White, general superintendent of the Missouri Pacific and W. E. Williams, assistant to the chief operating officer of the Missouri-Kansas-Texas as vice-presidents. B. W. Frauenthal, general traffic agent of the United Railways of St. Louis was re-elected secretary and treasurer. A. S. Goble, manager of the Baldwin Locomotive Works, A. H. Handlan, president of the Handlan-Buck Manufacturing Company and T. J. Frier, purchasing agent of the Wabash, were elected members of the board. The club now has more than 1,000 members. It has revived the plan of awarding a scholarship in Washington University to the son of some member. The candidate must rank among the first three in his class on graduation from high school.

Luncheon in Honor of Secretary of Newcomen Society

On April 20, L. F. Loree gave a luncheon at the Bankers' Club, New York, in honor of H. W. Dickinson, honorable secretary of the Newcomen Society of England, who has come to America especially to attend the ceremonies to be held next week and will be one of the principal speakers at the dinner in celebration of the One Hundredth Anniversary of the founding of the Delaware & Hudson Company on April 23. The Newcomen Society is an organization of engineers which devotes special attention to the historical study of transportation and industry and takes its name from the early inventor of the steam engine. There are many points in the early history of railroad engineering in America which are not clear, and it is believed that an investigation of these matters might well be carried on in collaboration with the Newcomen Society. Mr. Dickinson is also in charge of the great Kensington Museum in London, which has the finest collection of early machines and engines in the world. The guests at the luncheon included representatives of the leading technical publications and engineering societies.

Five Unions to Ask Wage Increases

Five of the large railroad labor unions are expected to appear shortly before the Railroad Labor Board with petitions for substantial increases in their pay. It is understood that the unions which will make the appeal are the railway and steamship clerks, freight handlers and express and station employees, the maintenance of way employees and railway shop laborers, the telegraphers, telephoners and agents, the signalmen and the train dispatchers. It is expected that the Labor Board will be asked to put the pay back to the levels in effect in June, 1922, before the general reductions in rates which took effect the following month. There are numerous rumors also that the shop crafts organization, headed by

B. M. Jewell, intends to appear before the board prior to July 1.

Conferences are now under way among the various brotherhoods for the purpose of preparing their cases to be put before the Labor Board. Representatives of the eastern lines in the clerks' organization met at Buffalo, N. Y., on April 10, while the southwestern employees convened at Atlanta, Ga., on April 15. The representatives of the clerical employees of the central territory were scheduled to meet at Chicago on April 19.

Inspection Bureau Finds Defective 64.3 Per Cent of Locomotives Examined

Of 5,368 locomotives inspected by the Bureau of Locomotive Inspection of the Interstate Commerce Commission during March, 3,453 or 64.3 per cent were found defective and 733 were ordered out of service, according to the monthly report of the commission to the President on the condition of railroad equipment. During the same month the Bureau of Safety inspected 109,950 freight cars and found 8.9 per cent defective, and 1,735 passenger cars, of which 2.1 per cent were found defective.

Revenues and Expenses for February

The Interstate Commerce Commission's summary of revenues and expenses for Class I roads for February and two months of 1923 is as follows:

Item	February		Two months	
	1923	1922	1923	1922
Average number of miles operated	235,785.14	235,432.73	235,771.74	235,438.86
Revenues:				
Freight	$326,698,996	$294,629,889	$693,566,576	$571,822,835
Passenger	[2]79,152,044	[3]73,621,006	[4]170,262,545	[5]157,368,330
Mail	7,309,375	6,990,958	14,773,522	14,374,179
Express	9,847,236	6,275,102	20,739,858	12,835,688
All other transportation	13,792,099	12,054,665	28,905,440	24,099,463
Incidental	9,242,204	7,409,139	19,269,104	15,820,174
Joint facility—Cr.	811,586	773,580	1,649,235	1,390,046
Joint facility—Dr.	214,146	177,567	409,876	350,946
Railway operating revs.	446,639,394	401,576,772	948,756,404	797,359,769
Expenses:				
Maintenance of way and structures	48,360,959	46,600,099	101,203,781	95,339,237
Maint. of equipment	112,167,034	91,948,480	235,091,576	185,571,749
Traffic	7,373,838	6,794,242	14,847,783	13,972,526
Transportation	191,890,964	163,491,812	400,299,265	334,802,328
Miscellaneous operations	3,739,307	3,510,797	7,856,985	7,200,050
General	12,747,531	12,655,734	26,270,284	26,189,453
Transportation for investment—Cr.	454,397	429,617	1,010,393	845,908
Railway operating exps.	375,825,236	324,571,547	784,559,281	662,229,435
Net revenue from railway operations	70,814,158	77,005,225	164,197,123	135,130,334
Railway tax accruals	24,322,605	22,754,311	49,731,472	45,554,743
Uncollectible railway revs.	165,347	90,057	261,039	171,896
Railway operat. income	46,326,206	54,160,857	114,204,612	89,403,695
Equip. rents—Dr. balance	5,858,858	5,081,664	11,645,593	9,226,435
Joint facility rent—Dr. balance	1,608,075	1,377,453	3,008,518	2,893,376
Net railway operating income	38,859,273	47,701,740	99,550,501	77,283,896
Ratio of expenses to revenues (per cent)	84.15	80.82	82.69	83.05

[2]Includes $2,527,372 sleeping and parlor car surcharge.
[3]Includes $2,116,156 sleeping and parlor car surcharge.
[4]Includes $5,301,076, sleeping and parlor car surcharge.
[5]Includes $4,372,366, sleeping and parlor car surcharge.

NOTE.—Excludes Monongahela Connecting, report not having been filed at date of compilation.

Earliest Locomotive in America Traced

Wholly lost sight of for nearly a hundred years and with its fate still unrecorded in detail, the first steam locomotive ever seen on the American continent has within a few weeks past been traced by one of its members, the right-hand cylinder, which has just been authoritatively identified in the National Museum at Washington. This locomotive, the "America," was built in 1828 on an order from the Delaware and Hudson Canal Company by George Stephenson of England, who soon after designed and built the famous Rocket, and was in nearly all respects, except that it did not have the multitubular boiler, the pattern for the more famous engine.

The America was brought to New York by the Delaware and Hudson Company in January, 1829, and after being demonstrated under steam was sent up the company's new canal towards Honesdale, where it was to be tried out on the first railroad in the country, connecting Honesdale and Cardondale. From the time the America passed the eastern terminus of the canal all documentary record of it ceases. But a few weeks ago an official of the Delaware and Hudson Company, while arranging with the National Museum at Washington for the loan of a model of the "Stourbridge Lion," another Delaware and Hudson locomotive, which was the first to be tested on a railroad track in America, found among the unmounted locomotive parts which had been supposed to belong to the "Lion," a cylinder whose design and measurements showed it beyond question to be one of the cylinders of the missing locomotive "America." Curator C. W. Mitman, of the division of Mechanical Technology of the Museum, declared, after a careful comparison of this cylinder with historical data, that the identification could not be questioned. It is hoped that with this clue established, other parts of the "America" may be recovered, as the Stourbridge Lion itself has been gradually reassembled in nearly all parts, from various sources along the lines of the Delaware and Hudson Company.

Mechanical Division Issues Program for June Meeting

The regular annual meeting of the American Railway Association, Mechanical division, will be held at Orchestra Hall, 220 South Michigan avenue, Chicago, on Wednesday, Thursday and Friday, June 20, 21 and 22, 1923. The program is of exceptional interest. In addition to the reports of the committees a number of individual papers have been prepared and the meeting will be addressed by R. H. Aishton, president, American Railway Association; W. W. Atterbury, vice-president, Pennsylvania System; C. H. Markham, president, Illinois Central; W. B. Storey, president, Atchison, Topeka & Santa Fe, and Sir Henry Thornton, president, Canadian National. A list of the individual papers follows:

The Development of the Locomotive by Samuel Vauclain, president, Baldwin Locomotive Works.

The Development of Railway Cars, by E. F. Carry, president, The Pullman Company.

Increasing Locomotive Mileage, by C. F. Giles, superintendent, machinery, Louisville & Nashville.

Training of Apprentices and Supervising Foremen, by John Purcell, assistant to the vice-president, Atchison, Topeka & Santa Fe.

Reports from the following committees will be presented for discussion:

General Committee
Nominating Committee
Arbitration Committee
Committee on Brakes and Brake Equipment
Committee on Car Construction
Committee on Couplers and Draft Gears
Committee on Design of Shops and Engine Terminals
Committee on Electric Rolling Stock
Committee on Loading Rules
Committee on Locomotive and Car Lighting
Committee on Locomotive Design and Construction
Committee on Prices for Labor and Material
Committee on Safety Appliances
Committee on Specifications and Tests for Materials
Committee on Tank Cars
Committee on Wheels

In addition to the committee reports it is planned to provide an opportunity for a free discussion of the following general subjects:

Co-operative Research
Economies from Modern Shop Machinery
Handling of Material on Car Repair Tracks
Modern Repair Track Facilities
Possibilities for Increased Efficiency of Modern Locomotives
Shop Management Problems of Today

All day sessions will be held on each of the three days.

Fuel Association Convention Papers

A well-rounded program of interest to railroad officers and coal operators has been arranged for the annual meeting of the International Railway Fuel Association to be held at the Hotel Winton, Cleveland, Ohio, May 21-24. The following list gives the addresses, papers and reports which have already been definitely arranged. The invocation will be delivered by Rev. John G. Hindley, pastor of the East Cleveland Congregational Church. T. K. Maher, president of the

Maher Collieries Company, Cleveland, will deliver the address of welcome, which will be followed by the opening address by Julius Kruttschnitt, chairman of the executive committee of the Southern Pacific. Mr. Kruttschnitt has chosen as his subject Railway Fuel—A Reducible 13 per Cent of Operating Expenses. H. M. Griggs, manager of the Ore & Coal Exchange, Cleveland, will address the convention on Lake Coal Handling, and C. E. Maurer, president of the Glens Run Coal Company, will deliver an address on a subject to be selected later.

The subjects of the individual papers and the authors are as follows: Extension of Locomotive Runs, C. B. Peck, western mechanical editor, *Railway Age;* Economic Aspects of the Fuel Oil Situation, C. E. Beecher, acting chief petroleum technologist, U. S. Bureau of Mines; Incentives for Promoting Fuel Economy, O. S. Beyer, Jr., consulting engineer; Classification of Coals, Geo. H. Cushing, publisher, Cushing's Survey; The Fuel Saving Aspect of Boiler Water Treatment, C. R. Knowles, superintendent water service, Illinois Central; The Effect of Tonnage Rating and Speed on Fuel Consumption, J. E. Davenport, superintendent fuel and locomotive performance, New York Central; The Other Ten Per Cent, R. S. Twogood, assistant engineer, Southern Pacific; The Superheater—Its Use and Abuse from a Fuel Economy Standpoint, Bard Browne, service engineer, the Superheater Company; Refractories for Oil-Burning Locomotives, J. C. Martin, Jr., vice-president, Ætna Combustion Company; Economy in the Heating of Stations and Buildings, R. W. Noland, professor of heating and ventilating, Purdue University; Value of Individual Performance Record, L. G. Plant, editor Railway Review.

The following standing committees will also present reports: Firing Practice, (Chairman S. H. Bray, Southern Pacific); Fuel Accounting, Distribution and Statistics, (Chairman B. A. McDowell, Baltimore & Ohio); Fuel Stations, (Chairman, W. E. Dunham, Chicago & North Western); Front Ends, Grates and Ash Pans, (Chairman Prof. E. C. Schmidt, University of Illinois); Boiler Feed Water Heaters, (Chairman E. E. Chapman, Atchison, Topeka & Santa Fe). The Committee on Storage Coal, of which the late Prof. H. H. Stoek was chairman, will also present a report.

United States Chamber of Commerce Transportation Study

The chairmen of the five special committees of the transportation conference being conducted under the auspices of the Chamber of Commerce of the United States have been placed on the program to speak on the progress of their work at the annual meeting in New York May 7-11. The membership of two additional committees not previously announced has now been appointed and both committees have held their initial meetings at Washington. The five chairmen will all appear before the transportation group meeting on May 9, which will be presided over by Carl R. Gray, president of the Union Pacific, who is also chairman of the special committee on railroad consolidations and will speak on that subject during the session. Railroad questions will also be discussed at the insurance group meeting and the financial group meeting.

The committee on governmental relations, of which George A. Post, president of the Hudson River Bridge Corporation, is chairman, includes the following: Wm. D. B. Ainey, chairman, Pennsylvania Public Service Commission; Thos. C. Atkeson, Washington Representative National Grange; O. E. Bradfute, president, American Farm Bureau Federation; Roy D. Chapin, president Hudson Motor Company; W. B. Cole, president, Nashville, Chattanooga & St. Louis; Samuel O. Dunn, editor *Railway Age;* J. S. Frelinghuysen; Howard Heinz; Walker D. Hines, former director general of railroads; Hale Holden, president, Chicago, Burlington & Quincy; Edwin T. Meredith, former Secretary of Agriculture; Judge Edwin B. Parker; L. E. Sheppard, president, Order of Railway Conductors; Samuel M. Vauclain, president, Baldwin Locomotive Works; Paul Warburg, former member of the Federal Reserve Board; Daniel Willard, president, Baltimore & Ohio.

Following is the membership of the rate schedule readjustment committee: Chairman, F. A. Delano, former president, Wabash; Congressman Sydney Anderson, chairman Joint Commission for Agricultural Inquiry; Joseph M. Belleville, National Industrial Traffic League; B. Campbell, vice-president, New York, New Haven & Hartford; Edward Chambers, vice-president, Atchison, Topeka & Santa Fe; Archibald Fries, vice-president, Baltimore & Ohio; H. J. Frost, vice-president, Wm. Filene's Sons Company; W. P. Gerhardt, vice-president, Bush Terminal Company; Dwight B. Heard; Frank F. Henry, Washburn-Crosby Company; George H. Ingalls, vice-president, New York Central; Alexander Legge, president, International Harvester Company; W. C. Maxwell, vice-president, Wabash; D. B. Robertson, president, Brotherhood Locomotive Firemen & Enginemen; A. R. Smith, vice-president, Louisville & Nashville; Theodore F. Whitmarsh, Francis H. Leggett Company; J. G. Woodworth, vice-president, Northern Pacific.

Transportation Institute Seeks Incorporation

The National Transportation Institute, giving as its object a comprehensive survey of transportation, has applied for articles of incorporation in the State of Illinois. The incorporation of the institute is the result of more than a year's discussion of the desirability of a non-partisan and non-government organization to make a disinterested investigation and analysis of every branch of transportation. The aims of the institute were described in the *Railway Age* of December 16, 1922, page 1131.

The object of the organization, as set forth in a statement to the secretary of state of Illinois, is "to conduct non-partisan and impartial investigation and research into every kind of transportation and the relation of transportation agencies to each other and to agriculture, industries, finance, trade and commerce; to disseminate the facts thus acquired to the public through the platform, press, educational institutions, motion pictures and other available means." The corporation guarantees that it will not become either directly or indirectly a representative of transportation agencies, producers or shippers, or of any special group.

In outlining the program of the institute, J. R. Howard, its president, and former president of the American Farm Bureau Federation, said in part:

"Transportation is now, and will be for the next 10 years, the most serious domestic problem confronting the United States. No one in the country knows the whole truth about transportation. The National Transportation Institute has been created to discover the truth about transportation and to present it unbiased, uncolored by theories or political doctrines, and free from the dictation of carriers or shippers. The Institute has no connection with the Govenment. It will be supported by membership fees and is open to all individuals, firms, corporations and associations interested in the object for which it was created.

"No organization of economic transportation facts upon which decisions can be predicated now exists. A research into economic problems relating to transportation is far behind research in other fields, such as engineering, chemistry and medicine. The National Transportation Institute hopes to supply this need. Investigations and research will be carried through by highly trained men, working scientifically to discover and formulate the basic facts of the whole transportation problem and not particularly for the carriers, shippers or the Government."

The directors of the Institute for 1923 are: Representative Sidney Anderson, Minnesota, chairman of the Congressional Joint Commission of Agricultural Inquiry; O. E. Bradfute, president of the American Farm Bureau Federation; W. G. Dows, president of the Iowa Railway & Light Company, Cedar Rapids, Ia.; J. E. Edgerton, president of the National Association of Manufacturers, Lebanon, Tenn.; J. R. Howard, former president of the American Farm Bureau Federation; R. P. Lamont, president, American Steel Foundries, Chicago; M. T. McKee, general counsel, Insurance Federation of Michigan, Detroit, Mich.; J. L. Lovett, general manager, Michigan Manufacturers' Association, Detroit, Mich.; B. M. Robinson, president of the American Short Line Railroad Association; W. E. Skinner, secretary and general manager of the National Dairy Association, Chicago; Andrew Stevenson, vice-president, Interstate Sand & Gravel Company, Chicago, and W. M. Ritter, president, W. M. Ritter Lumber Company, Columbus, Ohio.

Traffic News

The Southern Railway has opened a traffic agency in Havana, Cuba, with Charles F. Lauer, formerly commercial agent at St. Louis, as agent.

The St. Louis-San Francisco plans to operate a daily strawberry special from the Springfield (Mo.) district to St. Louis, commencing May 5 to move the strawberry crop of this district which it is expected will amount to 1,427 cars.

The Canadian Pacific announces that during the summer there will be three night express trains each way between Montreal and Toronto. A new train will be put in service on May 20, leaving Toronto at 9:50 and leaving Montreal at 11 o'clock.

The Benefit Association of Railway Employees, a corporation, with headquarters at Chicago, has bought land at the southwest corner of Montrose and Hazel avenues, on which it plans to erect a three-story building, 60 ft. by 135 ft., for national headquarters.

The Michigan Central and the Canadian Pacific will establish on May 27 a new train to be known as the Dominion Overseas, which will leave Chicago at 8:47 a. m. and arrive at Montreal at 8:15 a. m. the following day. The train will make connections with Canadian Pacific steamships for Europe.

The Canadian trunk lines announce that railroad rates for immigrants from Europe this summer will be reduced to about the basis prevailing before the World War. It is said that this will make the fare from Halifax to western points about $8 less than from New York or Boston and that, therefore, the Interstate Commerce Commission will be asked to authorize reductions from the last named ports. The Canadian roads also plan to make reductions in fares for settlers from the United States who propose to take up land in Canada.

"Far from Hopeless" is the condition of the railroads of New England, according to the conclusions of the special committee of investigation appointed by the governors of the six New England States. The committee, however, has not yet formulated its report, and this is the informal statement of its chairman, James J. Storrow, of Boston. Mr. Storrow believes that there are prospects of a broader market for New England than the section has ever before enjoyed. He says that the committee is still of an open mind as to the question of consolidating New England lines into one system. The physical conditions of the roads as far as tracks, bridges and ordinary buildings are concerned were found to be excellent. Motive power and equipment, however, on many of the roads are not so good as they should be.

Bullinger's Guide

Bullinger's Guide, the well-known postal and shippers guide, covering the whole of the United States and Canada, appears for 1923 with a new feature, introduced especially for freight shippers in New York City; an additional column, in the list of railroads, showing by a code of numbers, the proper freight station to which shipments should be sent to be carried to any place named in the book. This would appear to be a valuable addition. Shippers will, no doubt, in most cases, confirm the information, before acting upon it, by communicating with the railroad to which the list refers, for in the case of substantially all distant points, the notes give a choice of a large number of lines, without any information as to which one may furnish the most suitable route. Again, the list appears to have been made up rather hurriedly and to include some errors. For example, certain points in Central Pennsylvania are entered under the head of the New York, Ontario & Western, which takes shipments only for the West and Northwest. For some points in Nebraska the shipper is advised to go to the dock of the Morgan Line, running steamers to New Orleans. Twenty-seven transportation lines are named, including 15 which are water lines.

Anthracite Shipments—March, 1923

The shipments of anthracite for the month of March, 1923, as reported to the Anthracite Bureau of Information, Philadelphia, amounted to 7,183,518 gross tons, as compared with 6,778,667 gross tons during the corresponding month last year, an increase of 404,851 tons, or about 6 per cent. Shipments of anthracite have exceeded 7,000,000 tons only six times previous to March of this year, and these were all in the war years of 1917 and 1918 when the washery tonnage was much more of a factor than it is at the present time. The March shipments exceeded those of February this year by 1,231,805 tons or 20.7 per cent.

Shipments by originating carriers were as follows:

	March, 1923	March, 1922	February, 1923
Philadelphia & Reading	1,370,476	1,372,024	1,206,538
Lehigh Valley	1,279,599	1,220,563	1,097,351
Central Railroad of N. J.	622,710	654,679	521,430
Delaware, Lackawanna & Western	1,146,217	1,047,622	957,612
Delaware & Hudson	907,099	909,261	629,514
Pennsylvania	542,167	523,273	483,466
Erie	818,817	654,492	712,210
N. Y., Ontario & Western	192,247	154,681	169,176
Lehigh & New England	304,186	242,072	174,416
Total	7,183,518	6,778,667	5,951,713

Proposed Mileage Ticket Disturbs Transcontinental Competition

A petition has been filed with the Interstate Commerce Commission by eleven railroads requesting a modification of Rule 12 of the commission's order prescribing interchangeable scrip coupon tickets by the elimination of the words "except that cash will not be accepted in part payment in any case in which the standard one-way fare is $90 or greater" in connection with a scrip coupon ticket. The petitioners are the Southern Pacific; the Louisville & Nashville; the Atlanta & West Point; the Southern; the Norfolk & Western; the Illinois Central and other roads. These lines with their connections maintain passenger service via El Paso and New Orleans between points on the Pacific coast and points on the Atlantic coast, in competition with routes via Kansas City, St. Louis, Chicago and other gateways. They assert that for 20 years transcontinental passenger fares have been the same over the various routes and that the provision of Rule 12 referred to will unjustly discriminate against the El Paso route and give an undue and unreasonable advantage to the other routes, because if passengers use scrip to purchase part-way tickets to be used in combination, lower combination fares will be available by the more direct routes.

Ticket Bureau Acts to Prevent Scalping

Anticipating the possible increased scalping of tickets in the near future owing to the low summer tourist rates which will soon become effective on western railroads, the Railway Ticket Protective Bureau has enlisted the co-operation of the Denver Tourist and Publicity Bureau and the Denver Civic and Commercial Association in efforts to put a stop to this practice with tickets to Colorado points. The Tourist Bureau is urging the newspapers of Denver to eliminate advertising of scalpers and is soliciting the co-operation of the hotels in eliminating scalping among their employees. The Denver Civic and Commercial Association has communicated with the newspapers, hotels, cab companies, police department, the mayor, the city attorney and the district attorney, directing attention to the law and asking the co-operation of these various bodies in the enforcement of the law. Blind advertisements constitute the principal medium for scalping, which makes it difficult to suppress.

In Los Angeles last year, special attention to tickets presented on trains resulted in the confiscation of hundreds of tickets and the collection of cash fares by reasons of these confiscations, which, on one railroad, amounted to $34,000 in a few months. Laws forbidding ticket scalping exist in every state but satisfactory enforcement of such laws seems possible only through federal legislation.

Commission and Court News

Interstate Commerce Commission

The commission has ordered an investigation as to whether unlawful discrimination has been created by the general assembly of North Carolina by an act requiring the cancellation of the surcharge for passengers in parlor and sleeping cars in intrastate traffic.

There having been filed with the commission certain tariffs proposing substantial changes in the all rail rates on wool and mohair, c. l., from the Pacific Coast and intermediate territory to eastern defined territories which are now under suspension until June 20, the commission has ordered an investigation into the reasonableness and propriety of the rates, rules, regulations, transit arrangements, and minimum carload rates on wool and mohair from the Pacific Coast and intermediate territory west of the eastern boundary of the Dakotas, Nebraska, Kansas, Oklahoma and Texas, to all points east of that line, and from the intermediate territory by rail and water to the Atlantic seaboard ports; also from the intermediate territory by rail to the Pacific ports locally and at proportional rates. The combination rates by rail and water on the same commodities from the intermediate territory to the east via Pacific ports (in which no changes are proposed) are closely related to the proposed all rail rates and, the commission says, should be considered therewith.

Investigation of Pullman Rates and Sleeping-Car Surcharges

The commission is to make a general investigation into the propriety and reasonableness of the surcharge upon passengers in sleeping and parlor cars and also of the rates of the Pullman Company. The investigation is also to include the bases of compensation as between the railroad companies and the Pullman Company with respect to the use of sleeping and parlor cars. A complaint of the Order of United Travelers of America asking for the elimination of the surcharge has been consolidated with this proceeding.

State Commissions

The application of the Missouri Pacific and the Wabash for a rehearing of the decision of the Public Service Commission of Missouri, that a switching charge made by the roads in St. Louis was illegal, was overruled on April 16. The complaint of the switching charge was brought by Swift & Company and the Independent Packing Company.

The Public Service Commission of Alabama has called upon all common carriers, rail, express or water, to appear on May 10 and show cause why the commisssion should not issue a proposed new code of rules regulating freight and passenger transportation. Among other proposed rules are one to require freight stations to be kept open nine hours each day, or eight hours where only one man is employed; one to permit the shipper always to designate the route by which his freight shall be sent and one to require posting of bulletins to give notice of delayed passenger trains.

Personnel of Commissions

Fred Esch, who has been with the Interstate Commerce Commission for 10 years, including six years as attorney and examiner and four years as valuation analyst, has entered the general practice of law in Washington with John Walsh.

AVIATORS IN CANADA, during the 12 months of 1922, flew 294,449 miles, carrying 9,153 passengers and 77,850 lb. of freight, according to a report of the Canadian Air Board. Saskatchewan aviators led the Dominion in passenger transportation, carrying 3,622 people.

Foreign Railway News

Chinese Road Buys Locomotives in Japan

The Kirin-Changchun Railway, China, has ordered two Mikado type locomotives from the Kawasaki Shipbuilding Yards, Kobe, Japan.

New Railway in Morocco Opened for Traffic

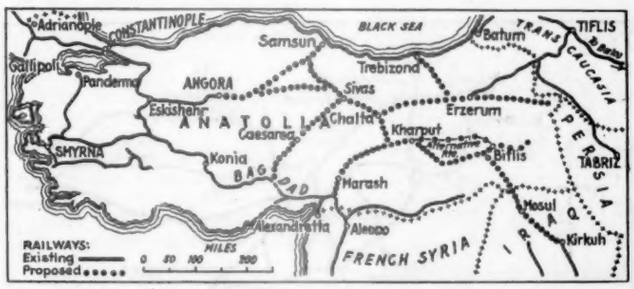
The new standard gage railway from Rabat to Fez, in Morocco, has been opened to traffic. The line is 155 miles long. Hitherto the country has had only narrow gage military railways. This construction is the beginning of a system which will total 550 miles when completed.

New Railway in Belgian Congo

Construction on a new railway line was started recently at Bakuma, Belgian Congo. This place is connected by rail with the Rhodesian Railways and through these lines with the South African Railways, thus having a through connection with Capetown. The new railway will extend northwestward to Ilebo on the Kasai river, a distance of 500 miles. The Kasai is a navigable tributary of the Lower Congo river, so by it and the new railway a new route to the sea will be afforded for the rich copper mines around Bakuma.

Americans Get Railway Concession in Turkey

The "Chester concession" whereby an American concern called the Ottoman-American Development Company would be permitted to build and operate railways in Anatolia, Turkey, has been approved by the grand national assembly of Turkey, according to cable dispatches from Constantinople to the New York World. The minister of public works has announced that construction will begin at once. The total railway construction involved in the concession totals 2,700 miles of line, which is almost equivalent to the entire mileage in Anatolia at present.



New Railway Lines Included in "Chester" Concession

Strike Threatens in Britain

Mechanical department employees of the British railways, with employees in other metal trade industries, threaten to strike if the last of the "war bonus," which has been steadily reduced with declining living costs, is taken from them.

J. H. Thomas, secretary of the National Union of Railwaymen, has condemned the action of the employees in refusing to arbitrate their dispute. Mr. Thomas' organization "caters to all classes of railwaymen" and actually includes employees in most occupations. As a matter of fact, however, while his union aspires to represent all employees, the enginemen and firemen, and the clerks have organizations of their own and the shopmen are affiliated with the metal trades unions which are not confined to the railway field.

The shopmen, from their affiliation with these "outside" unions, during the war secured the same advantages in pay increases accorded to employees in the munitions and other industries. Other railwaymen were not able to secure such favorable treatment dur-

ing the war but did secure certain advantages over other classes of workmen in the post-war deflation. The shopmen then allied themselves with other railwaymen and were successful in retaining somewhat more of their war-time wage than men doing similar work in other industries. The shopmen thus have considered themselves either primarily as metal trade mechanics or as railway employees, whichever attitude would give them the greatest advantage in bargaining.

Chilean Railway Operates First Electric Train

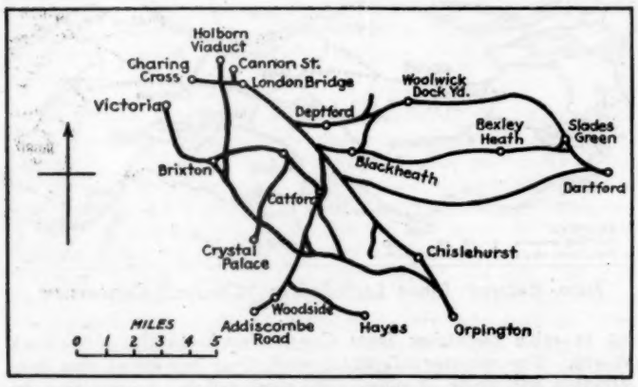
The first electrically-operated train on the Chilean State Railways made a successful trip from Santiago to Tiltil and return on Tuesday, April 17, according to a cablegram received by the Westinghouse Electric & Manufacturing Company. The train was operated by President Alessandri of Chile, as engineman, and the American Ambassador to Chile, was carried as a passenger.

The distance between Santiago and Tiltil is about 30 miles and constitutes the eastern end of the electrified line of 144 miles from Santiago to Valparaiso. When completed, 33 electric locomotives will be used on the electrified section.

Southern Railway in England to Electrify Suburban Lines

Contracts for material and electric power have been let in connection with the long deferred electrification of the suburban lines of the South Eastern section of the Southern Railway (England). The routes to be converted from steam to electric operation are shown on the map and it will be noted that the scheme covers all the suburban lines within a radius of about 15 miles of the London terminal stations and includes both the old Chatham & Dover and South Eastern Railways.

The entire scheme covers 234 route miles, although the work now in hand involves a route mileage of 94 miles or a single track mileage, including sidings, of 210 miles. The routes which are to be electrified are particularly suitable for electrical operation by reason of the dense traffic which



Suburban Lines of the Southern Railway (England) Which Are to Be Electrified

must be handled. It is expected that electric operation by making possible both greater speed and permitting a greater number of trains will improve the service by 30 per cent.

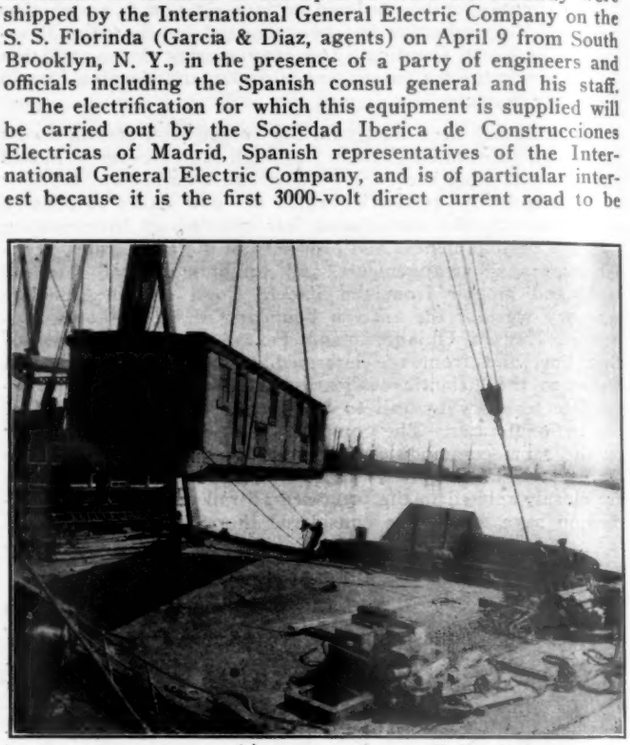
The Southern Railway Company has entered into an agreement with the London Electric Supply Corporation, Limited, under which that company will supply power from its Deptford station, which is to be extended for the purpose. Power will be distributed from the power house to sub-stations located throughout the suburban area where it will be converted from three-phase alternating current to 600-volt direct current and delivered to the conductor rail. It is intended that the rolling stock for the electrified section will consist of about 60 eight-car trains, each composed of 62-ft. cars. Each train will seat about 700 passengers and will be equipped with eight 300-horsepower motors.

The original estimate of the cost of the work was £5,500,000 (about $25,500,000 at the present rate of exchange) and a guarantee covering this amount has been given under the provisions of the Trade Facilities Act. The most important contract for material which has been let at the present time is with the Cargo Fleet Iron Company, Limited, of Middlesbrough for 7,500 tons of conductor rail.

American Electric Locomotives for Spain

Three of the six 100-ton, 3,000-volt d. c. electric locomotives, comprising part of the $1,500,000 contract for the electrification of 40 miles of the Spanish Northern Railway were shipped by the International General Electric Company on the S. S. Florinda (Garcia & Diaz, agents) on April 9 from South Brooklyn, N. Y., in the presence of a party of engineers and officials including the Spanish consul general and his staff.

The electrification for which this equipment is supplied will be carried out by the Sociedad Iberica de Construcciones Electricas of Madrid, Spanish representatives of the International General Electric Company, and is of particular interest because it is the first 3000-volt direct current road to be



Hoisting One of the Electric Locomotives on Shipboard for Transportation to Spain

installed in Europe. It is known as the Pajares Grande division.

These locomotives are of particular interest, since they are a somewhat novel design using three axles instead of the usual two axle trucks. They are of the swivel truck type and each is equipped with six 400 hp. motors, giving a capacity sufficient to handle a full tonnage train up the 2 per cent grades at 22 miles per hour. On the return trip the trains will be held by the regenerative braking.

In addition to the locomotives, the contracts placed with the Spanish company include equipment of two 300 kw. substations and material for overhead distribution for the entire electric zone. Shipment of this latter equipment has already been made and is being installed by the Spanish company.

Railway Conditions in Russia

A report of the League of Nations regarding the present railway situation in Russia is the first authoritative summary of conditions there since a year or more ago when the famine necessitated the collection of whatever statistical material had any value. The present report was prepared because of the danger of a repetition of last year's famine, so special emphasis is given to agricultural and transportation problems.

According to the league, the transportation system was reorganized in 1922 with a view to improving conditions, but in spite of this an acute crisis developed in the autumn because of the additional strain of crop moving. The league summarizes the 1922 reorganization as follows:

"At the beginning of 1918, shortly after the Bolsheviks came into power, railway commissaries were selected by the local soviets and railway trade-unionists, and in the course of the civil war it was judged politically expedient by the soviet

government to confirm the majority of these appointments because of the hostility of many of the more highly trained and experienced railway officials whose continuation at their posts was necessary in order to maintain some efficiency in the transport services.

"Now, however, the Council of Labor and Defense has decided to abolish the system of commissaries and to distribute the management of the railways under separate railway boards, each controlling a group of lines and serving as far as possible a particular industrial area. It is stated that these boards will be allowed a large measure of independence and initiative in the commercial exploitation of their lines, and it will be their duty to enter into relations with the principal economic departments of the state within the areas subject to their control. They will have under their control various subsidiary undertakings necessary to the efficient operation of the railways and are entitled to enter into independent agreements with other bodies for the supply of the materials they need.

"Through the People's Commissariat for Transport they are at liberty to enter into direct relations with any state department except the Council of People's Commissaries, the All-Russian Central Executive Committee and the Council of Labor and Defense. The Commissariat for Transport, however, will retain general control of the railway system, and will confirm the nominations of the members of the railway boards who will be appointed by the Council of Labor and Defense, Managers of lines will be appointed by the Commissariat for Transport, and will be responsible to it in all administrative and technical matters, although subordinate to their respective boards in commercial and business matters.

"It is not yet possible to judge whether this scheme for a more purely commercial and less political organization of the railway will improve matters. But the controversy raging in the soviet press regarding the high tariffs now obtaining on the railways—notwithstanding which the railways continue to show a heavy deficit—and the fact that the railways appear from recent information once more to have reached a stage of acute crisis, show how difficult will be the task of the new boards; in the present circumstances high tariffs do not avail to balance the railway budget, and it may be doubted whether lower tariffs will prove more profitable in view of the almost complete absence of goods to transport and of customers who can pay for them when they are transported."

The league emphasizes a fact which is generally known, but not always taken into consideration in discussions of Russian conditions, namely, that the disorganization of the railways had progressed a long way before the Bolshevists came into power. The mobilization of 17,000,000 men, the use of rolling stock at the front, the transport of imports all the way from Archangel or Vladivostok are merely a few of the more important factors that broke down the system during the war, while the only compensating fact was the reduction in grain exports. The league states that an attempt was made to meet the rolling stock problem, and in particular the problem of conveyance from Vladivostok by shipping locomotives from Canada and the United States to Vladivostok, and by erecting freight cars there and sending them on into the interior. In this way some 700 locomotives and a considerable number of cars were supplied. But in spite of this the number of sound locomotives on Russian railways fell from 20,000 to 16,800 at the end of 1916.

The fluctuations of fortune in the civil war are shown in the change in the lengths of railway which remained in the hands of the soviet government at various dates.

	Versts
1917	59,280
1918	25,108
1919	29,516
1920	53,261
1921	61,210

In spite of the reduced amount of work done by the railways, the numbers employed during recent years were greater than before the war although they showed a tendency to decline during 1921. According to a well informed source they have shown the following changes:

	Number
1913	815,502
1915	905,289
Jan. 1, 1921	1,229,051
June 1, 1921	1,057,890
Jan. 1, 1922	933,472

Equipment and Supplies

Locomotives

THE CANADIAN PACIFIC has placed an order for 20 Mikado type P-2 locomotives, to have a tractive effort of 56,100 lb., with the Montreal Locomotive Works. An order has also been placed for 6 steel snow plows to be built in the railroad company's shops at Angus.

THE CHICAGO JUNCTION, reported in the *Railway Age* of February 3 as having ordered five, 0-8-0 switching type locomotives from the Lima Locomotive Works, has increased its order one locomotive, making a total of six locomotives ordered from the Lima Locomotive Works.

THE PACIFIC ELECTRIC, reported in the *Railway Age* of March 24 as inquiring for 10 electric locomotives, has placed an order with the Westinghouse Electric & Manufacturing Co., for two 43-ton electric locomotives and will build in its own shops eight electric locomotives weighing 60 tons.

THE LEHIGH VALLEY, reported in the *Railway Age* of April 14 as contemplating coming in the market for from 25 to 30 Mikado type locomotives, has ordered 40 Mikado type locomotives from the American Locomotive Company. This road will place orders shortly for 10 Pacific type locomotives for passenger service.

Freight Cars

THE ELGIN, JOLIET & EASTERN is inquiring for 500 steel underframes.

THE ATLANTIC COAST LINE is inquiring for 50 ballast cars of 50 tons' capacity.

THE CHICAGO, INDIANAPOLIS & LOUISVILLE is inquiring for 500, 50-ton gondola cars.

THE SPOKANE, PORTLAND & SEATTLE is inquiring for 50 flat cars of 40 tons' capacity.

THE DENVER & RIO GRANDE WESTERN is repairing over 1,000 freight cars in its own shops.

THE ASTORIA LIGHT, HEAT & POWER COMPANY, New York City, is inquiring for two flat cars.

THE LOUISIANA RAILWAY & NAVIGATION COMPANY is inquiring for 150 box cars of 40 tons' capacity.

THE NORFOLK & WESTERN is reported as having placed an order for repairs to 700 hopper cars with the Ralston Steel Car Company.

THE BINGHAM & GARFIELD, reported in the *Railway Age* of February 13 as inquiring for 100 80-ton ore cars, has withdrawn this inquiry.

THE PUBLIC SERVICE CORPORATION OF NORTHERN ILLINOIS has ordered four hopper cars of 70 tons' capacity from the Pressed Steel Car Company.

THE BERTHA COAL COMPANY, Pittsburgh, Pa., reported in the *Railway Age* of March 24 as inquiring for 100 hopper cars, is now inquiring for 100 hopper cars of 55 tons' capacity and 100 hopper cars of 70 tons' capacity.

THE VIRGINIAN RAILWAY, reported in the *Railway Age* of March 31 as inquiring for 1,000 gondola cars and 500 hopper cars, has ordered from the Pressed Steel Car Company 1,000, 120-ton all-steel gondola coal cars and has also ordered from the Standard Steel Car Company 500 all-steel 70-ton hopper cars.

THE ILLINOIS CENTRAL has placed orders for repairs to 300 36-ft., 40-ton box cars with the Midwest Engine Company, for

repairs to 100 36-ft. steel box cars with the Pullman Company and for repairs to 150 automobile box cars with the Ryan Car Company. The above repairs are in addition to the 3,000 reported in the *Railway Age* of April 7.

THE BOSTON & MAINE, reported in the *Railway Age* of March 31 as inquiring for 300 flat cars of 55 tons' capacity, 200 refrigerator cars of 35 tons' capacity and 100 Hart convertible ballast cars of 50 tons' capacity, has ordered the flat cars from the Magor Car Corporation, the refrigerator cars from the Merchants Dispatch Transportation Company and the Hart convertible ballast cars from the American Car & Foundry Company.

Passenger Cars

THE SEABOARD AIR LINE, reported in the *Railway Age* of April 7 as inquiring for four combination baggage and mail cars, has ordered this equipment from the Pressed Steel Car Company.

THE MISSOURI PACIFIC, reported in the *Railway Age* of March 31 as inquiring for five mail storage and ten baggage cars, has withdrawn its inquiry. This company is having repairs made to 50 passenger cars at the shops of the St. Louis Car Company and to 50 cars at the shops of the American Car & Foundry Company.

THE ILLINOIS CENTRAL, reported in the *Railway Age* of March 31 as inquiring for four parlor cars, two cafe lounge cars, five dining cars, eight baggage cars and six horse baggage cars, has ordered the horse baggage and the baggage cars from the Standard Steel Car Company and the other equipment from the Pullman Company. This company, reported in the *Railway Age* of April 14 as inquiring for 25 60-ft. 6-in. steel suburban coaches, has ordered this equipment from the Pullman Company.

Machinery and Tools

THE MAINE CENTRAL has ordered a 40 ton, 50 ft. boom, locomotive crane from the Industrial Works.

THE UNION PACIFIC is inquiring for one 25-ton gantry crane and has placed an order for a No. 3 pile driver with the Industrial Works.

THE AMERICAN SHORT LINE RAILROAD ASSOCIATION is inquiring for one used steam wrecking crane of from 75 to 100 tons' capacity.

THE BALTIMORE & OHIO has recently contracted with the Chesapeake Iron Works, Baltimore, for the construction and delivery of a 50-ton freight-handling gantry crane, for use in its Oak street yard, Baltimore, Md.

Signaling

THE CANADIAN PACIFIC has ordered from the Federal Signal Company an electric interlocking, 23 working levers, to be installed at Glen Yards, Quebec.

THE MISSOURI PACIFIC has ordered from the Federal Signal Company material for a number of electrically operated outlying switches, with accompanying signals, and other apparatus, the switches to be operated by low-voltage machines.

THE INTERBOROUGH RAPID TRANSIT COMPANY, New York City has ordered from the Union Switch & Signal Company material for an electro-pneumatic interlocking at Mosholu Parkway and Jerome Avenue; 49 working levers and 6 spare spaces.

THE CHICAGO, BURLINGTON & QUINCY has ordered from the Federal Signal Company 249 color-light signals, 8 color-light dwarf signals, 24 markers for "grade" signals, 10 calling-on signals and other apparatus for an extensive automatic block signal installation. All of these signals are light signals. Of the high signals, 182 are two-position and 67 are three-position. The total number of relays required is 1,120; switch boxes, 232; and switch indicators, 126.

Supply Trade News

The **Irvin C. De Haven Engineering Corporation,** Indianapolis, Ind., has been appointed district representatives of the **Conveyors Corporation of America,** Chicago.

W. J. Roehl has been appointed representative in the southwest territory for the **Locomotive Lubricator Company,** with headquarters in the Railway Exchange building, St. Louis, Mo.

R. W. Wentworth has been appointed district manager of sales of the **Interstate Iron & Steel Company,** with headquarters in the Merchants National Bank building, St. Paul, Minn. The company was formerly represented in the Northwest by the Paul J. Kaulman Steel Company.

Vinton E. Sisson, mechanical engineer and patent engineer of the **Union Metal Products Company,** with headquarters at Chicago, has been promoted to patent counsel in which position he will be in charge of the patent department. Mr. Sisson has been associated with the Union Metal Products Company for the past 12 years, prior to which time he was employed by the American Car & Foundry Company in the engineering department. He has also been employed in the engineering department of the Pressed Steel Car Company. Mr. Sisson has also patented several designs for steel ends, centering devices and buffer springs.

V. E. Sisson

M. M. Marcus has resigned as vice-president and general superintendent of the Rhode Island Malleable Iron Works to become associated with the **Gulick-Henderson Company,** New York, engineers, metallurgists and chemists as consulting engineer in charge of its foundry department. His entire time will be devoted to consulting foundry engineering.

The Western Electric Company, New York, has bought 55 acres of land on the Jersey meadows, midway between Newark and Jersey City. The land has a frontage on the Passaic river of about 1,600 ft., and upon the site the company will immediately begin the erection of factory buildings to supplement the manufacturing operations now carried on at its Hawthorne plant in Chicago.

V. Villette, mechanical expert, Pacific district of the Westinghouse Air Brake Company, has been promoted to representative, Westinghouse Air Brake Company and Westinghouse Traction Brake Company of the same district with office at San Francisco, Cal. **A. C. Layton,** a locomotive engineman on the Los Angeles division of the Southern Pacific, succeeds Mr. Villette as mechanical expert. **Raymond Boiselle,** mechanical expert, Westinghouse Traction Brake Company, St. Louis, Mo., has been transferred to Wilmerding, Pa., as representative, Westinghouse Air Brake Company and Westinghouse Traction Brake Company, Pittsburgh district. **F. C. Young,** industrial representative, Pittsburgh district, has been promoted to representative, Westinghouse Air Brake Company and Westinghouse Traction Brake Company for the same district. **S. B. Schrontz,** chief clerk, Pittsburgh district office, has been appointed industrial representative, Pittsburgh district, assisting Mr. Young and **E. H. Weaver,** indus-

trial representative, Pittsburgh district, has been transferred to the Chicago office as inspector for the Westinghouse Air Brake Company.

General American Tank Car Corporation

The net profits of the General American Tank Car Corporation for the year ended December 31, 1922, was $1,521,795 after depreciation and taxes, compared with net profits of $1,154,614 in 1921. The annual report shows a surplus of $261,262 compared with a surplus for the year 1921 of $48,252. The income account for 1922 and the balance sheet as of December 31, 1922, are as follows:

INCOME ACCOUNT

	1922
Operating profit after taxes	$2,284,611
Depreciation	762,816
Dividends	1,260,533
Surplus for year	261,262

ASSETS

Cash		$1,628,783
Notes receivable	$6,742,908	
Less advances	1,440,000	
		5,302,908
Trade acceptances		12,000
Accounts receivable		2,122,796
Inventories		5,615,400
Total current assets		$14,681,889
Investments		211,749
Rolling stock (tank cars)		14,325,032
Real estate, plants and machinery		5,466,210
Prepaid interest, insurance, etc.		796,001
Patents and good will		1
		$35,480,883

LIABILITIES

Notes payable	$2,900,000
Accounts payable	1,568,991
Accrued taxes, interest, etc.	648,902
Dividends payable	534,842
Total current liabilities	$5,652,735
Reserves for contingencies and federal taxes	295,000
Other reserves	834,212
Tank car equipment notes	9,192,000
Preferred stock (less amount retired)	8,843,900
Balance applicable to common stock	10,663,035
	$35,480,883

Electric Steel Castings Problem Discussed

The Electric Steel Founders' Research Group held a convention at East Aurora, N. Y., on April 13 and 14, at which representatives from the five electric steel casting plants forming the group, joined in a discussion of important steel foundry problems. W. H. Worrilow, president of the Lebanon Steel Foundry, Lebanon, Pa., presided over the convention sessions.

The first day's program included the reading and discussion of a paper on "Electric Steel Castings for Specialties" by W. J. Nugent, vice-president of Electric Steel Co., Chicago, Ill., and also a paper on "Properties of Electric Steel Castings and Where They Should Be Used" by T. S. Quinn, treasurer of Lebanon Steel Foundry, Lebanon, Pa. The second day's program was featured by a paper on "Cost Accounting" by L. S. Peregoy, Secretary of Sivyer Steel Casting Co., Milwaukee, Wis., and a paper on "Salesmanship" by J. C. Redmond of Michigan Steel Casting Co., Detroit, Mich.

Among the representatives who made addresses during the convention was C. R. Messinger, vice-president of Sivyer Steel Casting Co., Milwaukee, Wis., who told about the significance and benefits obtained from co-operative efforts in conducting electric steel foundry research work. H. J. Koch, secretary of Fort Pitt Steel Casting Co., McKeesport, Pa., gave some interesting points on systematic production planning and analysis of customers' requirements. R. A. Bull, Research Director of the Group, spoke on the various phases of research work being undertaken by the five Group foundries to maintain and improve the quality of their steel castings and decrease costs of production. W. J. Corbett, Industrial Engineer of the Group, spoke on the subject of new uses for electrical steel castings, explaining that some users of metal parts have not yet realized that steel castings having thin sections can be made by the electric process with considerable reduction in weight and economy in machining and assembling the castings.

Fairbanks, Morse & Company

The annual report of Fairbanks, Morse & Company, Chicago, shows net earnings for 1922 of $2,552,678, compared with a loss of $1,330,417 in 1921. Common stock dividends amounted to $669,658 or $5.05 per share. The net surplus for the year was $817,060 compared with a deficit of $4,349,370 for 1921. The profit and loss account for 1922 and the balance sheet as of December 31, 1922, are as follows:

PROFIT AND LOSS ACCOUNT

	1922	1921
Earnings for the year after the deduction of manufacturing, selling and administrative expenses.	$2,452,678	*$1,330,417
Dividend E. & T. Fairbanks & Company	100,000	.....
Earnings for the year	$2,552,678	*$1,330,417
Depreciation of buildings and equipment	776,567	612,237
Contributions to the pension fund	81,391	73,142
Preferred stock sinking fund	100,000	.....
Reserve for adjustment of foreign exchange	.....	200,000
Amount written off houses for employees	.....	53,735
Reserve for cost of removal of manufacture of company engines from Three Rivers to Beloit	.....	96,867
Loss on adjustment of inventories and reserves	.....	1,870,470
	$947,959	$2,906,453
Less dividends paid	$1,594,718	*$4,236,870
Preferred stock	108,000	112,500
Common stock	669,658	.....
	$777,658	$112,500
Net surplus for the year	817,060	*4,349,370
Previous surplus (adjusted)	15,061,836	19,411,206
	$15,978,897	$15,061,836

* Deficit.

BALANCE SHEET

ASSETS

Cash on hand and in banks	$789,905	$634,309
Accounts receivable	4,634,899	3,822,864
Notes receivable	2,015,571	2,080,342
Inventories of merchandise	7,826,268	6,792,452
Foreign branch houses	786,393	1,198,879
Total current assets	$16,053,038	$14,528,849
Investments	123,645	200,613
Deferred charges	126,897	84,550
Furniture and fixtures	123,640	134,655
Machinery, tools and equipment	4,101,900	3,701,043
Factory buildings and real estate	4,920,358	5,649,866
Warehouse buildings and sundry real estate	396,599	401,122
Patents, trademarks and goodwill	1	1
Timber land investments	.....	63,993
Capital stock—E. &. T. Fairbanks & Co.	1,500,000	1,500,000
	$27,346,081	$26,264,696

LIABILITIES

Accounts payable	$1,672,488	$1,262,371
Notes payable	.....	.....
Accrued dividends	449,728	9,000
Accrued expense	434,990	458,530
Total current liabilities	$2,557,207	$1,729,902
Reserve for taxes and contingencies	$1,215,666	$1,053,067
Preferred stock	1,800,000	1,800,000
Common stock	5,794,310	6,619,890
Surplus	15,978,897	15,061,836
	$27,346,081	$26,264,696

Obituary

Percy M. Elliott, president of the Camel Company, Chicago, and vice-president of the Ryan Car Company, died at the Henrotin Memorial Hospital, Chicago, on April 18 after a prolonged illness.

Trade Publications

A TEST OF INTEGRAL WATERPROOFING.—In an eight-page folder issued by the Truscon Laboratories, a report is presented of tests made by Samuel R. T. Very, architect, on the increased impermeability of concrete containing an integral waterproofing compound. The report is presented in an entertaining way with no similarity to the exceedingly prosaic style commonly used in reporting such tests. The conclusions obtained are also presented in a concise way so that the busy reader has no difficulty in getting at the fundamental facts. As pointed out in the report, the tests were conducted so as to approximate as nearly as possible the kind of workmanship commonly obtained in actual concreting rather than that secured under laboratory conditions.

Railway Construction

CANADIAN NATIONAL RAILWAYS.—G. P. Graham, Acting Minister of Railways of Canada, stated in Parliament on April 13 the determination of the government to complete the company's line to Hudson Bay, which is already partially constructed, as soon as funds are available.

CHESAPEAKE & OHIO.—This company's $3,500,000 improvement program at Clifton Forge, Va., which was announced in the *Railway Age* last week, involves the moving of a portion of the city of Clifton Forge and the village of Selma—80 houses in all and the relocation of a highway. It will also be necessary to change the channel of the Jackson river at two places and to carry the entire yard across the river. The work will involve 2,000,000 cu. yd. of excavation; 25,000 cu. yd. of concrete; 1,300,000 ft. B. M. timber in cofferdam; 138 tons of reinforcing steel; 3,600 tons bridge steel. The Brooks-Callaway Company and the Hardaway Company, Atlanta, Ga., have the contracts for the work. The improvements will be made to extend the yards to care for the classification and movement of trains without delay.

CITY OF MONTREAL.—This city contemplates the rebuilding of a subway under the tracks of the Canadian Pacific at Ontario street and another under the Grand Trunk tracks at Wellington street, the cost of both works to total approximately $425,000.

EL PASO & SOUTHWESTERN.—This company has awarded a contract to Anderson Brothers, El Paso, Tex., for the construction of a ten-stall addition to the roundhouse at El Paso, as reported in the *Railway Age* of March 24. The company also plans the construction of a coaling plant at Tucumcari, New Mexico.

GREAT NORTHERN.—This company will construct a new roundhouse, machine shop and power plant at St. Cloud, Minn., at a cost of $500,000. This project was reported as contemplated in the *Railway Age* of December 16, 1922.

ILLINOIS CENTRAL.—This company has awarded a contract to R. L. Frazier, La Center, Ky., for the grading of the second track at Clinton, Ill., reported in the *Railway Age* of March 31. This company has awarded a contract to Joseph E. Nelson & Sons, Chicago, for the construction of a passenger station at Homewood, Ill.

KANSAS CITY SOUTHERN.—The Interstate Commerce Commission has issued a certificate authorizing the construction of an extension of a branch line from Lawton to Military Junction, Kans., 8.6 miles.

NORTHERN PACIFIC.—This company has authorized the construction of additional sewerage facilities at St. Paul, Minn., to cost $250,000 and the realinement of the main line at Tacoma, Wash., to cost $200,000.

OREGON SHORT LINE.—This company has applied to the Interstate Commerce Commission for a certificate for the construction of a line to extend from Ada to Perkins, Ida., a distance of 27.25 miles.

PENNSYLVANIA.—This company has awarded a contract to the Hughes-Foulkrod Company, Pittsburgh, for the erection of walls, roof, skylight and sash for its new shops at Juniata. The Wilson & English Construction Company have the contract for foundation and flooring and the McClintic-Marshall Company for the structural steel frame. The building will be 340 ft. by 690 ft. and will be equipped with two 250-ton cranes, four 50-ton cranes and 50 pits. The shop will have a capacity for heavy repairs to 100 locomotives a month. The company has under consideration and review various plans for the rearrangement of its facilities at Newark, N. J., including a new passenger station.

PERE MARQUETTE.—This company has awarded a contract to the Dominion Construction Company for the construction of 15 miles of second track between Delray, Mich., and Plymouth.

PERE MARQUETTE.—This company has awarded a contract to the Arnold Company, Chicago, for the construction of a roundhouse at Grand Rapids, Mich., as was reported in the *Railway Age* of February 7.

PHILADELPHIA & READING.—This company has awarded a contract to the Fred A. Havens Company, Philadelphia, Pa., for the construction of a new freight house at East Trenton, N. J. The new building will be of brick construction, one story, 30 ft. by 75 ft. It will have a 40 ft. by 125 ft. platform. Coincident with the building of the freight house, the yards will be enlarged to have a capacity of 45 cars. The cost of the work will approximate $50,000.

SAN ANTONIO, MEDINA LAKE & WESTERN.—This company, which has recently been incorporated in the State of Texas, proposes to construct a line from San Antonio, Tex., to Sonora, a distance of approximately 190 miles. At Sonora, connection will be made with the Kansas City, Mexico & Orient. The general offices of the line will be located in San Antonio.

SAN ANTONIO SOUTHERN.—This company, which was reported in the *Railway Age* of March 31 as having applied to the Interstate Commerce Commission for permission to construct a line 250 miles long from Christine, Tex., to a point on the Rio Grande river, has already begun construction and 20 miles of the line has been graded. The projected line will extend from Christine to Roma, or Rio Grande City, and thence to Brownsville. The cost of this construction is estimated at approximately $4,000,000.

SOUTHERN PACIFIC.—This company plans the construction of a new roundhouse at Lafayette, La.

SOUTHERN PACIFIC OF MEXICO.—This company, which was reported in the *Railway Age* of March 3 as having authorized the completion of the line in Mexico from Tepic to a connection with the National Railways of Mexico at La Quemada, has let a contract for the grading to Twohy Brothers, Seattle, Wash. Contract for the bridges will be let later and track laying will be undertaken with company forces. Approximately 3,600,000 cu. yd. of rock and dirt will be moved per mile, the maximum grade being 1.5 per cent and the maximum curvature 6 deg. One steel viaduct 9,000 ft. long will be constructed as well as other shorter spans of steel and reinforced concrete. Thirty-three tunnels, aggregating about 26,000 ft. in length, will also be a part of the construction. E. B. Sloan, chief engineer at Tepic, Nayarit, Mexico, is in charge of the construction.

SOUTHERN PACIFIC.—This company has awarded a contract to the Utah Construction Company, San Francisco, Cal., for the construction of 8 miles of first track from Wells, Nev., to Moor, for 21 miles of first track from Montello, Nev., to Valley Pass and for 7 miles of first track from Truckee, Cal., to Andover. A contract has been awarded to the Erickson, Patterson & Grier Co., San Francisco, for the construction of 5 miles of second track from Blue Canon, Cal., to Emigrant Gap. The company is calling for bids for the construction of 11 miles of second track from Mojave, Cal., to Cameron.

ST. LOUIS-SAN FRANCISCO.—This company will construct a 15-stall roundhouse and additional shop buildings at Monett, Mo., to cost approximately $500,000 to replace facilities recently destroyed by fire.

TEMISKAMING & NORTHERN ONTARIO.—The government of the province of Ontario and the T. & N. O. Railway Commission will decide within a few days whether or not a branch line will be built to Kirkland Lake.

UNION PACIFIC.—This company has authorized the construction of 55 miles of second track on the Union Pacific and 10 miles of second track on the Oregon Short Line, as well as additional side tracks and yard tracks as a part of the construction program for this year.

WABASH.—This company has been ordered by the Missouri Public Service Commission to depress its tracks under Delmar boulevard in St. Louis, Mo., the railroad to bear 60 per cent of the cost and the city 40 per cent. The depression of the tracks and the erection of the necessary viaducts is estimated to cost approximately $535,000.

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ATCHISON, TOPEKA & SANTA FE.—*Authorized to Acquire Control.*—This company has been authorized by the Interstate Commerce Commission to acquire control of the Rio Grande, El Paso & Santa Fe by lease.

CENTRAL WEST VIRGINIA & SOUTHERN.—*Six Months' Guaranty.*—Payment of $11,066 in final settlement of guaranty has been certified to the Treasury by the Interstate Commerce Commission.

CHICAGO, ST. LOUIS & NEW ORLEANS.—*Joint Bond Issue Authorized.*—This company and the Illinois Central have been authorized by the Interstate Commerce Commission to issue $3,168,900 of joint first and refunding mortgage 5 per cent bonds.

CHESAPEAKE & OHIO.—*New Directors.*—The membership of the board of directors has been increased from nine to eleven by the election of W. A. Colston, vice-president of the New York, Chicago & St. Louis, and W. L. Ross, president and receiver of the Toledo, St. Louis & Western.

DENVER & RIO GRANDE WESTERN.—*Equipment Trust Authorized.*—The Interstate Commerce Commission has authorized this company to assume obligation and liability in respect of $4,500,000 of equipment trust certificates to be issued by the Bank of North America & Trust Company and sold at not less than 96½.

GEORGIA & FLORIDA.—*Suit.*—The trial of the case of John S. Williams, receiver of this road, against T. R. Bennett, state superintendent of banks of Georgia, seeking to compel preferred payment of $150,000 the receiver had on deposit in the defunct Merchants' Bank at Augusta, has been set for May 11.

HARBOR COMMISSIONERS OF WILMINGTON, DEL.—*Authorized to Operate Line.*—The Interstate Commerce Commission has issued a certificate authorizing the Board of Harbor Commissioners to operate a line of railroad in the City of Wilmington, Del., consisting of about 10 miles of main track with spurs and sidings extending from connections with the Philadelphia & Reading, the Pennsylvania and the Baltimore & Ohio to the water front, and to various industries.

LOUISIANA & PACIFIC.—*Authorized to Abandon Line.*—This company has been authorized by the Interstate Commerce Commission to abandon its line from Long Acre to Hoy, La., 6 miles.

NEW YORK, ONTARIO & WESTERN.—*Annual report.*—Annual report for 1922 issued this week shows a deficit after charges of $748,099. In 1921, this road had a net after charges of $636,460.

RIO GRANDE, EL PASO & SANTA FE.—*Acquisition of Control.*—See Atchison, Topeka & Santa Fe.

SAN ANTONIO, MEDINA LAKE & WESTERN.—*Incorporation.*—This company has filed incorporation papers in the secretary of state's office at Austin, Tex. The company has a capital stock of $190,000, and its purpose is to construct and operate a railroad between San Antonio and San Angelo, 190 miles. The general offices are in San Antonio. The incorporators are W. L. Williams, P. G. Lucas, Paul Hansen, all of San Antonio, and others. The proposed road will connect with the Santa Fe at Menard and with the Kansas City, Mexico & Orient and the Santa Fe at San Angelo.

WABASH.—*Annual Report.*—This company's annual report for 1922 is reviewed in an article on another page of this issue entitled "Wabash Annual Report for 1922 Disappointing."

Trend of Railway Stock and Bond Prices

	April 17	Last Week	Last Year
Average price of 20 representative railway stocks	66.83	65.88	64.99
Average price of 20 representative railway bonds	82.83	82.99	85.82

Railway Officers

Executive

P. J. Schardt, whose appointment as assistant to the vice-president of the Southern with headquarters at Washington was announced in the *Railway Age* of April 7, page 932, was born on October 7, 1878, at Saukville, Wis., and was educated in the public school of that village and at the state normal school in Oshkosh. He was appointed railway postal clerk in 1900 and served in that capacity until 1911. In 1907 and 1908 he served as auditor of the tenth division of the Railway Mail Association and as president of the tenth division of the association. From 1908 to 1911 he was national vice-president of the Railway Mail Association and from 1911 to 1914 was national president of the association. He was appointed chief clerk in the railway mail service with headquarters at Chicago in 1913 and served in that capacity until 1915 when he was promoted to assistant superintendent of the service at Chicago. In 1917 he was advanced to superintendent with the same headquarters and the following year was advanced in a similar capacity to New York where he remained until the time of his recent appointment. Mr. Schardt was United States postal agent in France from August, 1918, to November, 1919, in charge of the A. E. F. postal service.

P. J. Schardt

W. W. K. Sparrow, assistant to the president of the Chicago, Milwaukee & St. Paul, has been elected vice-president in charge of the financial and accounting departments with headquarters at Chicago. Mr. Sparrow was born on December 30, 1879, in Ireland, and entered railway service in 1896 in the engineering department of the Belfast & Northern Counties Railway. In 1899 he went to South Africa where he entered the service of the South African Railways and was engaged in location and construction and maintenance work. In 1909 he came to the United States and entered the service of Waddell & Harrington, consulting engineers, Kansas City, Mo. A short time thereafter he became connected with H. von Unwerth, consulting engineer, of the same city. From 1913 to 1916 he served the Missouri Public Service Commission, first as assistant chief engineer and then as chief engineer. He was then appointed valuation engineer of the Chicago, Burlington & Quincy. During federal control he was chief engineer of the Chicago, Milwaukee & St. Paul. Upon the return of the roads to private operation, he was appointed assistant chief engineer

W. W. K. Sparrow

of this company and in June of the same year was promoted to assistant to the president in charge of valuation and settlements with the Railroad Administration. In 1920 he was placed in charge of the accounting department, valuation and real estate with the same title, in which position he was serving at the time of his recent promotion.

Leon E. Thomas has been elected president of the Ironton Railroad with headquarters at Reading, Pa., succeeding W. A. Barrows, Jr., resigned.

E. T. Whiter, acting vice-president of the Northwestern region of the Pennsylvania, with headquarters at Chicago, has been elected vice-president of the Northwestern region, with the same headquarters, succeeding J. G. Rodgers, deceased. Mr. Whiter was born on March 26, 1864, at Steubenville, Ohio. He entered railway service on March 1, 1881, as a telegraph operator on the Pennsylvania. He was promoted to train dispatcher in May, 1885, and in July, 1896, was promoted to assistant trainmaster. He was later promoted to trainmaster and held this position until January 1, 1903, when he was promoted to division superintendent. Mr. Whiter was promoted to general superintendent of the Northwest district of the lines west of Pittsburgh, with headquarters at Pittsburgh, Pa., on February 1, 1913, and held this position until July 1, 1915, when he was promoted to assistant general manager of the lines west of Pittsburgh. He was promoted to assistant to the vice-president in charge of personnel of the system on March 1, 1920, with headquarters at Philadelphia, Pa. During Federal control he served as a member of Railway Board of Adjustment No. 1 of the United States Railroad Administration and from March, 1920, until May, 1921, served also as chairman of the Bi-partisan Committee on pending wage matters of the various railroad crafts, and as chairman of the Conference Committee of Managers of the Association of Railway Executives on pending wage matters and the national agreements. Mr. Whiter was promoted to acting vice-president of the Northwestern region on February 1, 1923, and was serving in this capacity at the time of his recent appointment as vice-president of the Northwestern region.

E. T. Whiter

Operating

T. P. Mock has been appointed assistant superintendent of the Texas division of the Gulf Coast Lines, with headquarters at Kingsville, Texas.

J. J. Cowin has been appointed trainmaster on the Tucson division of the Southern Pacific, with headquarters at Yuma, Ariz., succeeding J. C. Goodfellow, who has been transferred.

C. J. Smith has been appointed general manager of elevators and warehouses of the Canadian National with headquarters at Montreal. **A. E. Crilly** has been appointed chief of the wage bureau with the same headquarters.

W. F. Cooper, superintendent of terminals of the Southern with headquarters at Columbia, N. C., and **J. H. Rickmond,** superintendent of Salisbury-Spencer terminals, with headquarters at Spencer, N. C., have exchanged positions.

J. L. Brown, assistant superintendent of transportation of the Western lines of the Chicago, Milwaukee & St. Paul, with headquarters at Seattle, Wash., has been promoted to general superintendent of transportation, with headquarters at Chicago, succeeding G. L. Whipple, resigned, to accept service with another company.

G. L. Whipple, general superintendent of transportation of the Chicago, Milwaukee & St. Paul, with headquarters at Chicago, has been appointed general superintendent of transportation of the Union Pacific, with headquarters at Omaha, Neb., succeeding N. D. Ballantine, who has resigned to accept service with another company.

D. F. Stevens, superintendent of the Akron division of the Baltimore & Ohio, with headquarters at Akron, Ohio, has been promoted to general superintendent of the Northwest district, with headquarters at Cleveland, Ohio, succeeding **E. W. Hoffman,** who has been appointed general agent, with headquarters at Cleveland. **R. B. Mann,** superintendent of the Toledo division with headquarters at Dayton, Ohio, has been transferred to the Akron division, to succeed Mr. Stevens. **A. A. Iams,** superintendent of the Ohio division, with headquarters at Chillicothe, Ohio, has been transferred to the Toledo division in place of Mr. Mann. **M. D. Carothers,** assistant engineer maintenance of way of the Baltimore & Ohio Chicago terminal, with headquarters at Chicago, has been promoted to superintendent of the Ohio division with headquarters at Chillicothe, Ohio, succeeding Mr. Iams.

W. Atwill, whose promotion to general superintendent of the Southern lines of the Illinois Central, with headquarters at New Orleans, La., was reported in the *Railway Age* of March 31, page 891, entered railway service on the Illinois Central as night operator at Rockford, Ill. He was subsequently appointed train dispatcher on the Chicago & North Western and later held a similar position on the Grand Trunk, but returned to the Illinois Central in 1901, as train dispatcher at Dubuque, Iowa. He was later promoted to chief dispatcher at Cherokee, Iowa, and subsequently served in this capacity at Fort Dodge, Iowa, and Dubuque. Mr. Atwill was promoted to trainmaster, with headquarters at Fort Dodge in 1907, and a short time later was transferred to Dubuque. He was promoted to superintendent of the Minnesota division, with headquarters at Dubuque in 1915, and served in this capacity until 1917, when he was transferred to the St. Louis division, with headquarters at Carbondale, Ill. Mr. Atwill was serving in this capacity at the time of his recent promotion to general superintendent of the Southern lines, with headquarters at New Orleans, La.

W. Atwill

Traffic

R. N. Nash, whose promotion to general freight agent of the St. Louis-San Francisco, with headquarters at St. Louis, Mo., was reported in the *Railway Age* of March 31, was born on February 26, 1880, at Tarboro, N. C. He entered railway service on September 14, 1897, as a messenger in the freight office and in the office of the general superintendent of the Atlantic Coast Line. He served as file clerk and held other positions in the freight traffic department between October, 1898, and January, 1910, at which time he was promoted to chief clerk. On November 21, 1921, he was promoted to assistant general freight agent, and served in this capacity until August 1, 1913, when he was appointed assistant to the freight traffic manager of the St. Louis-San Francisco. During Federal control he served as chief clerk to the traffic manager. On December 1, 1919, he was promoted to assistant general freight agent, with headquarters at St. Louis, in which position he was serving at the time of his recent promotion.

J. D. McDonald, general passenger agent of the Grand Trunk, with headquarters at Chicago, has retired from active service. Mr. McDonald was born on August 27, 1855, and entered railway service in 1868, as a messenger for the Grand Trunk. He was promoted to assistant ticket agent at Toronto, Ont., in 1870, and served in this capacity until 1875, when he was promoted to ticket agent at Buffalo, N. Y. He was promoted to city passenger and ticket agent in 1896, and in May, 1902, was promoted to district passenger agent, with headquarters at Toronto, Ont. He was promoted to assistant general passenger agent, with headquarters at Chicago, in March, 1911, and held this position until May 1, 1919, when he was promoted to general passenger agent, with the same headquarters. He was serving in this capacity at the time of his retirement.

H. C. Stauffer, whose appointment as freight traffic manager of the Philadelphia & Reading was announced in the *Railway Age* of April 7, page 933, was educated in the common and preparatory schools and entered the service of the Philadelphia & Reading as agent at Kimberton, Pa. Later he served as agent at Byers, Pa., and then at Douglassville, Pa. From the latter position he was transferred to the position of chief clerk at the 31st street and Girard avenue station, Philadelphia. After serving at that point for some time he was appointed freight agent at Chester, Pa., and then freight agent at Reading, Pa. He remained on duty at this point for seven years and went to Philadelphia in 1910 as division freight agent in charge of the New York division and the Atlantic City Railroad. He continued in this position during the time the railroads were operated by the government. When they were returned to private ownership, Mr. Sparrow was appointed general coal freight agent. He was promoted to general freight agent in April, 1921, and was serving in that capacity at the time of his recent promotion.

H. C. Stauffer

A. B. Chown, whose promotion to general passenger agent of the Grand Trunk, with headquarters at Chicago, was reported in the *Railway Age* of April 14, page 979, was born in 1887, at Belleville, Ont. He entered railway service in 1907 as a ticket clerk on the Grand Trunk at Belleville. He was promoted to soliciting passenger agent, with headquarters at Toronto, in 1911, and two years later was promoted to traveling passenger agent, with headquarters at Pittsburgh, Pa. He was transferred to New York City in June, 1918, and in December of that year was promoted to acting general agent for the passenger department, with the same headquarters. In March, 1919, he was promoted to general agent of the passenger department and served in this capacity until July, 1920, when his jurisdiction was extended over the passenger departments of both the Canadian National and the Grand Trunk. He was promoted to assistant general passenger agent, with headquarters at Chicago, in December, 1921, in which position he was serving at the time of his recent promotion to general passenger agent.

J. H. Brown, whose appointment as traffic manager of the Chicago & Western Indiana and the Belt Railway of Chicago, with headquarters at Chicago, was reported in the *Railway Age* of April 14, page 979, was born in 1875, at Rochester, N. Y. He entered railway service in 1896, as a rate clerk on the Michigan Central at Detroit, Mich. He was appointed chief clerk and general accountant on the North Shore Dispatch Fast Freight Line, with headquarters at Detroit, Mich., in 1898, and held this position until 1899, when he was appointed chief clerk to the assistant general freight agent of the Michigan Central, with headquarters at Chicago. He was appointed chief clerk to the freight traffic manager, with headquarters at Detroit in 1900, and in 1906 was appointed manager of the North & South Dispatch Fast Freight Line, with headquarters at Chicago. Mr. Brown was appointed assistant general freight agent of the Michigan Central, with headquarters at Bay City, Mich., in 1909, which position he held until 1911, when he was appointed general freight and passenger agent of the Gulf & Ship Island, with headquarters at Gulfport, Miss. He was promoted to traffic manager in 1914, and four years later was appointed traffic manager of the International Ship Builders company, with headquarters at Gulfport. He was appointed general traffic manager, with headquarters at New York, in 1919, and after one year in this capacity was appointed director of traffic of the Columbia Chemical Company, with headquarters at Pittsburgh, Pa. In 1921 he was elected secretary and treasurer of the Bird & Shelaby Company, at Los Angeles, Cal. He was appointed general agent for the Mississippi-Warrior Service, with headquarters at Mobile, Ala., in January, 1923, in which position he was serving at the time of his recent appointment as traffic manager of the Chicago & Western Indiana and the Belt Railway of Chicago.

William T. Marlow, whose appointment as general foreign freight agent of the Canadian Pacific with headquarters at Montreal was announced in the *Railway Age* of April 7, page 933, was born on October 25, 1872, at Limerick, Ireland. He was educated in private schools at Dublin and Toronto and entered railway service in 1886 as a junior in the dispatcher's office of the Canadian Pacific. In 1888 he was transferred to the office of the assistant superintendent and in the following year to the office of the assistant freight traffic manager at Toronto, in which office he became chief clerk. In 1896 he became chief tariff clerk in the office of the general freight agent at Toronto. In 1897 he joined the staff of the company's general agent at Hong Kong and served successively as passenger and freight agent, until 1902 when he returned to Canada as assistant to the foreign freight agent at Montreal. The following year he was appointed import freight agent for both railway and steamship lines with headquarters at Montreal. During the war he served as assistant director of overseas transport for the Dominion government and as deputy director general of the British Ministry of Shipping. In 1919 he was appointed general freight agent of the Canadian Pacific's ocean services. On February 1 of the current year he was appointed foreign freight agent in charge of import and export freight via Atlantic ports and on April 1 was advanced to general freight agent with the same jurisdiction.

W. T. Marlow

J. C. Emig has been promoted to assistant general freight agent of the Cleveland, Cincinnati, Chicago & St. Louis, with headquarters at Cincinnati, Ohio. Mr. Emig was born on September 3, 1868, at St. Louis, Mo. He entered railway service on March 20, 1892, as a clerk in the office of the Cleveland, Cincinnati, Chicago & St. Louis, at East St. Louis, Ill. He was promoted to claim clerk in the office of the assistant general freight agent at St. Louis, Mo., on November 1, 1895, and was subsequently promoted to rate clerk and chief clerk. He was promoted to contract agent and traveling freight agent in February, 1901, and served in this capacity until December 31, 1903, when he was promoted to commercial agent, with headquarters at St. Louis. Mr. Emig was promoted to industrial agent in charge of industrial and

agricultural developments, with headquarters at Cincinnati, Ohio, on January 1, 1904, and held this position until January 31, 1910, when he was promoted to assistant freight agent, with the same headquarters. He served in this capacity until August 15, 1915, when the position was abolished by the U. S. Railroad Administration, at which time he was appointed freight traffic representative. After the end of federal control on March 1, 1920, he was appointed industrial agent, with headquarters at Cincinnati, Ohio, in which position he was serving at the time of his recent promotion to assistant general freight agent.

Mechanical

F. E. Starkweather, assistant signal engineer of the Pere Marquette, with headquarters at Detroit, Mich., has been promoted to electrical engineer, with the same headquarters.

C. K. Woods, master mechanic of the Pere Marquette, with headquarters at Saginaw, Mich., has been promoted to assistant superintendent of motive power, with headquarters at Detroit. **R. A. Reid,** assistant master mechanic, with headquarters at Saginaw, has been promoted to master mechanic, with the same headquarters, succeeding Mr. Woods. **C. F. Willoughby,** mechanical inspector, with headquarters at Detroit, has been promoted to assistant master mechanic, with headquarters at Saginaw, succeeding Mr. Reid.

Engineering, Maintenance of Way and Signaling

H. C. Lorenzen, signal inspector for the Pere Marquette, with headquarters at Detroit, Mich., has been promoted to assistant signal engineer, with the same headquarters, succeeding F. E. Starkweather, promoted.

W. L. Breckinridge, assistant chief engineer of the Chicago, Burlington & Quincy, with headquarters at Chicago, has retired on account of ill health. During the 44 years of his continuous service, in which time the Burlington grew from a line of 1,709 miles of track to the present system of 9,389 miles, Mr. Breckinridge advanced in rank from rodman to assistant chief engineer. He was born on June 29, 1857, at Louisville, Ky., and graduated from Washington University, St. Louis, Mo., in 1879. Immediately following the completion of his education, Mr. Breckinridge entered the service of the Chicago, Burlington & Quincy as a rodman. He was soon promoted to assistant engineer and shortly thereafter was advanced to division engineer. His next promotion was to engineer of the Iowa lines, in which position he was serving in 1898, when he was promoted assistant to division superintendent on the same territory. In 1899, Mr. Breckinridge was promoted to chief engineer of the lines east of the Missouri river, with headquarters at Chicago. He continued in this capacity until 1918, when he was appointed chief engineer of the Burlington system for the United States Railroad Administration. Upon the termination of Federal control in 1920, he was appointed assistant chief engineer of the system, with headquarters at Chicago, and was serving in this capacity until illness compelled his retirement.

W. L. Breckinridge

G. J. Bell, district engineer of the Western district of the Atchison, Topeka & Santa Fe, with headquarters at Topeka, Kan., has been transferred to the Eastern district, with the same headquarters, succeeding W. C. Baisinger, promoted. **F. Helm,** office engineer, with headquarters at Topeka, has been promoted to district engineer of the Western district, with the same headquarters, succeeding Mr. Bell.

The following appointments have been made in the engineering department of the Western region of the Canadian National: **J. A. Heaman,** regional assistant chief engineer; **J. E. Davison,** assistant to regional chief engineer; **J. G. LeGrand,** bridge engineer; **W. Walkden,** assistant bridge engineer; **D. R. Campbell,** general superintendent construction; **William Burns,** construction engineer; **G. C. Briggs,** building engineer; **J. H. Cormick,** signal engineer; **H. P. Blake,** water supply engineer; **J. W. Porter,** special engineer; **Thomas Turnbull,** engineer maintenance of way (Manitoba and Saskatchewan districts). All the above will have their headquarters at Winnipeg, Man. **F. B. Tapley,** has been appointed engineer maintenance of way (Alberta and British Columbia districts) with headquarters at Edmonton, Alta.

Obituary

John G. Rodgers, vice-president of the Northwestern region of the Pennsylvania, with headquarters at Chicago, whose death on April 11 was reported in the *Railway Age* of April 14, was born on November 14, 1862. He entered railway service in 1882 as a rodman on the Pennsylvania and prior to January 1, 1900, had served consecutively as rodman, assistant engineer on construction, assistant to the chief engineer, assistant supervisor and supervisor. He was appointed superintendent of the New York, Philadelphia & Norfolk, a part of the Pennsylvania System, on January 1, 1900, and served in this capacity until March 24, 1909, when he was promoted to assistant to the general manager. Mr. Rodgers was promoted to general superintendent on March 3, 1911, and on September 20, 1917, was promoted to assistant to the president. He was elected vice-president in charge of the Northwestern region, with headquarters at Chicago, on March 1, 1920. For some months before his death Mr. Rodgers had been in ill health and on February 1 of this year was granted an extended leave of absence to recuperate. His death occurred at the resort in North Carolina where he was resting. Mr. Rodgers' entire service had been with the Pennsylvania.

J. G. Rodgers

F. W. Egan, formerly superintendent of the Western division of the Grand Trunk, with headquarters at Detroit, Mich., died on April 2 at Birmingham, Mich. Mr. Egan was born in 1862 and entered railway service in 1877, as a telegraph operator on the Chicago & Alton. He was consecutively promoted to dispatcher and chief dispatcher, and after serving for a time in the latter capacity on the Wabash, he was appointed trainmaster on the Grand Trunk, in 1898. A year later he was promoted to superintendent of the Middle division, and held this position until 1901, when he was transferred to the Western division. He was appointed general superintendent of the Denver & Rio Grande on April 1, 1902, and a year later was appointed general superintendent of the Colorado & Southern. Mr. Egan was appointed general manager of the Ft. Worth & Denver City on August 1, 1903, but resigned in December of that year on account of ill health and returned to the Grand Trunk as assistant superintendent in charge of transportation service of the First, Second and Third districts, his headquarters being at Island Pond, Vt. He was promoted to superintendent of the Western division, with headquarters at Detroit, in January, 1905, and served in this capacity until May, 1911, when he retired from active service on account of ill health.